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Project Green Reach at Brooklyn Botanic Garden: A Case Study of the Summer Program

Susan Conlon
University of Tennessee - Knoxville

To the Graduate Council:

I am submitting herewith a thesis written by Susan Conlon entitled "Project Green Reach at Brooklyn Botanic Garden: A Case Study of the Summer Program." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Plant Sciences.

Susan Hamilton, Major Professor

We have read this thesis and recommend its acceptance:

Mary Lewnes Albrecht, Michael Bentley, J. Mark Fly

Accepted for the Council:
Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Accepted for the Council:

Anne Mayhew
Vice Chancellor and Dean of Graduate Studies

(Original signatures are on file with official student records.)

Project Green Reach at Brooklyn Botanic Garden: A Case Study of the Summer Program

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Susan Conlon
December 2005

DEDICATION

This thesis is dedicated to
my father and fellow horticulturist
Hubert P. Conlon

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ABSTRACT

This study examined Project Green Reach (PGR), one program of the Children's Education Program at Brooklyn Botanic Garden (BBG). Located in Brooklyn, NY, BBG is a public garden that has served as a model program for garden-based youth education since 1914. PGR utilizes both the indoor classroom and outdoor laboratory to engage K-8 students and teachers at Brooklyn's Title I schools in informal learning about science. Every year, PGR instructors select a small group of students into the summer program where they work in teams on garden and science projects at BBG. A case study was conducted to document PGR's summer program as a potential model for informal science youth education and to investigate the effects of PGR on inner city youth. Field observations of PGR's summer program participants and collection of program documents were conducted during the 2004 Summer Program. In 2005, phone interviews were conducted with four adult PGR Summer Program alumni and one former staff member who discussed their experiences while participating in the program and described the meaning of PGR in their lives. From the data collected and triangulated through document review, observations, and interviews, seven themes emerged: (1) PGR participants come from challenging home and school environments, (2) PGR developed academic and interdisciplinary skills, (3) Participation increased understanding of science concepts and developed gardening skills, (4) PGR fostered environmental awareness, (5) PGR supported social development and personal growth, (6) PGR was a positive life experience, and (7) BBG is culturally significant to the participants' community. From the results, it is concluded that PGR has had an impact on participants' lives, showing that PGR had positive influence on their views towards BBG, gardening, and science.

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CHAPTER 1

INTRODUCTION

Study Background

In 1914, Brooklyn Botanic Garden (BBG) established a teaching garden for youth in New York City. The main goal of this garden was to provide practical skills and life lessons through hands-on gardening experiences; it was the first program of its kind at a public garden in the world. Ninety years later, the BBG Children's Garden and its Children's Gardening Program (CGP) serve as a prototype many other programs have emulated around the world (Stone, 1984).

One component of BBG's youth education programs is Project Green Reach (PGR). PGR is a specially funded outreach program designed to utilize hands-on, inquiry-based learning to promote science education and environmental awareness. This unique program has been serving K-8 students and teachers in Brooklyn's Title I schools for fifteen years. To be identified as a Title I school, the school must have a high number of children who live in high poverty areas and who are on free or reduced lunch programs, and the school is considered to be at risk of failing to meet the performance standards of state and federal agencies. Title I schools receive special federal funding and programs due to this status (Wisconsin Department of Public Instruction, 2004). PGR is comprised of a school-year program for Title I students in grades K-8 and the summer program for selected older students who participated during the school year.

Through PGR, BBG has acknowledged its role within the community as a resource for science education. Recognizing complementary missions of education, BBG and schools in Brooklyn have created a partnership to provide unique hands-on outdoor

activities for urban students and teachers (Sutter, 1990; Parker & Wodzinski, 2000). Students who participate in PGR often come from challenging home and school environments. Anecdotal evidence has shown that after participating in the summer program, these students quickly develop improved confidence and academic skills, evolving into young scientists and gardeners. The PGR Summer Program, also known as the Junior Botanist Summer Adventures program, is specifically designed to eliminate certain barriers, such as funding and transportation, that typically prevent these students from participating in these types of activities. PGR and BBG staff members would like to determine the long-term impacts on the students who participate in the PGR Summer Program.

In 2001, researchers from the University of Tennessee (UT) and other youth gardening professionals and researchers attended a national conference to work together on future research in youth gardening. There was a "meeting of the minds" on this important but largely overlooked topic; the National Committee on Youth Gardening was formed. The Committee "identified the lack of research literature on the impacts of garden-based education and recognized the need to examine the meaning of youth gardening programs" (Tims, 2003, p. 2). The BBG CGP was identified by the Committee, in conjunction with the National Gardening Association, as a model program for youth gardening due to its longstanding history and success (Blandford, 2002). Since 2001, researchers at UT have been working with BBG to document and research BBG's youth gardening programs, yet there still remains more to be done.

Growing up as the daughter of a horticulturist and a schoolteacher, there has always been an emphasis on education and, in particular, an appreciation for horticulture

and the natural environment in my family. As a horticulturist and a researcher, I was drawn to this particular study for several reasons. One reason is that PGR uses education and hands-on gardening experience to foster an appreciation for the natural environment in urban, inner city youth. By studying this program, I hope to contribute some insight on how public gardens can use these informal science education strategies in their communities. It is important to me to encourage people of all ages, backgrounds, and abilities to reduce or eliminate the barriers that would otherwise prevent them from experiencing the natural world. Gardening is a tremendous outlet for bringing together a diversity of people for a common, beneficial goal of providing a healthier, more aesthetically pleasing world and a better quality of life.

On a personal note, my father grew up in Brooklyn, NY, the setting for this program and research study. He visited BBG as a child and has fond memories of visiting the garden with his family. He, in part, credits his career interests in horticulture to visiting and recreating in the green spaces of Brooklyn, NY, including BBG and Prospect Park, as a child. Today he is an avid gardener and a professional horticulturist and has been for all of his personal and professional life. I have always been curious as to how and why my father came to discover and develop his passion for gardening having grown up in New York City. He has given many anecdotal accounts of his visits to BBG as a child and his career development in the field of horticulture. His experiences and life has obviously had some profound effect on me as a budding horticulturist because I followed in his footsteps into the profession of horticulture. This study is particularly personal in helping to learn a deeper understanding of my father's experiences as well as

other Brooklyn youths' experiences of nature through BBG while growing up in an urban area and how it may affect their beliefs, attitudes, and actions later in life.

Topic Statement

Children's gardening programs, including those at public gardens, engage children in hands-on activities through informal learning about the environment, nature, and science. This study takes a deeper look into the long-term effects on youth who participate in children's gardening programs through the example of the PGR Summer Program, a part of the CGP at BBG, and how this public garden can have an impact on plant-based youth education not only in schools but also within its community.

Study Purpose

The purpose of this study is to investigate the long-term impacts of a hands-on gardening program on inner city youth, to document PGR as a potential model for informal science learning and plant-based educational experiences for educating youth in the public garden forum, and to add to the qualitative research literature and general understanding about the children's gardening phenomenon in particular and the field of horticulture in general. This research study is focused on the PGR Summer Program. The Children's Gardening Program at BBG was selected for this study because it has a rich, extensive history of serving as a model for children's gardening programs at public gardens around the world and demonstrates how programs, such as PGR, serve special populations, such as youth, in their communities.

Significance of Study

This study has the potential to contribute to the greater understanding and body of knowledge in the qualitative research literature in public horticulture and children's

gardening. Based on discussions with public garden professionals and educators and a review of literature, there is an incredible need for more research on the value of informal learning offered through garden-based youth education (Eberbach & Crowley, 2004). Exploratory in nature, this study is one of the first of its kind in horticulture research studies that will demonstrate the potential value and benefits of these types of hands-on learning on inner city youth as described by past participants of a youth gardening program.

Rationale

It has been well known and documented there are positive effects of gardening on people in general (Lewis, 1996). Throughout the ages, various cultures around the world have reaped a variety of rewards from gardening. There have been documented cases of the therapeutic benefits of gardening on special populations, including the disabled, emotionally disturbed individuals, and the elderly (Lewis, 1996; Simson & Straus, 1998). There have also been studies that document the health benefits of gardening on people, including improved nutrition and physical activity. However, it has been found in a review of literature that there is a lack of documentation on the long-term effects of gardening activities on people, from youth to adulthood. Therefore this study would contribute to the knowledge and body of literature on the long-term effects of gardening on people, particularly the inner city population.

CHAPTER 2

REVIEW OF LITERATURE

Childhood Development and Learning through Hands-on Learning Experiences

Researchers studying hands-on learning experiences and gardening activities for youth have found that such activities may have considerable effects on individual attitudes concerning environmental values and gardening experience and, if developed during the early stages of childhood, become significant life experiences reaching far into adulthood (Tims, 2003). Exposing children to plants and the environment is a priority to horticultural and environmental educators at several levels (Kahtz, 1995). Researchers have concluded that people develop their attitudes about the environment at an early age. By the time they reach adolescence they have enough knowledge on a variety of environmental issues to formulate their own opinions on these issues (Bradley, Waliczek, & Zajicek, 1997; Jaus, 1984). Thus, it is vital to expose children to environmental concepts and learning in order to help them develop positive attitudes and instill values and awareness about science and the environment (Waliczek, Logan, & Zajicek, 2003; Skelly & Zajicek, 1998; Jaus, 1984).

Positive childhood attitudes have increased the understanding and appreciation for science and the environment; these attitudes can influence career choices in conservation, environment, and the sciences (Tanner, 1980; Tims, 2003). For example, Chawla (1998) did a comparative evaluation of several qualitative studies that examined significant life experiences for people in various environmental and conservation careers and organizations. A common theme found throughout these studies shows subjects often credit positive childhood experiences of nature as major factors in their interests in the

environment. There also can be a heightened environmental awareness and interest due to negative reactions to growing up in an urban area, or "concrete jungle." Participants cited concerns about health, pollution, and other negative effects of a degraded environment (Palmer, 1993; Chawla, 1998).

Young children are unable to grasp complex abstract thought but during their development will need to acquire the sensory experiences of objects and phenomena to enable them to develop more sophisticated conceptions and understandings (Kahtz, 1995). By using their senses of sight, smell, hearing, taste, and touch, children have the opportunity to ask questions and reason through what they are experiencing in their environment. Through their own hands-on experience and observations of their surroundings, children are better equipped for learning about science and the environment.

According to Waliczek, et al. (2003), "outdoor nature programs provide a positive, fun environment for children to learn about the world, as well as teaching them responsibility [and] improving their attitudes towards school" (p. 684). Outdoor programs require children to be actively engaged in hands-on activities in order to discover their surroundings (Wagner & Fones, 1999; Waliczek & Zajicek, 1999). Horticulture lends itself remarkably well to learning because it is such a hands-on discipline and requires participants to make observations about their surroundings (Waliczek & Zajicek, 1999; Skelly & Zajicek, 1998).

Pentz and Straus (1998) describe four areas in which children, particularly those with emotional, mental, and physical disabilities, benefit from gardening activities and horticultural therapy; they include "cognitive development, psychological growth, social

skill learning, and in prevocational work skills development" (p. 216). Cognitive development is advanced in several ways. Children who have difficulty with focus and poor attention span are able to channel their energy towards constructive hands-on activities. Typically children who enjoy these activities respond well and experience better focus and attention span and improved concentration. They are also able to learn new information and concepts in a learning atmosphere that is created to be where most participants find the gardening activities to be fun (Pentz & Straus, 1998).

Children may experience psychological growth by participating in these activities. They learn the responsibility that comes with taking care of another living thing. Pentz and Straus (1998) state that "gardening teaches the life lessons that plants, like children, develop in stages, each at their own pace, and that there are causes and effects for actions" (p. 216). Through gardening, they may feel they have a more meaningful and productive role within their family and community. These activities can have a profound effect on the emotional and social well-being of children. They develop improved self-esteem, respect for others, interpersonal skills, and the ability to work with others in a group. Children with anxiety issues may especially find gardening to be a source of contentment and relaxation (Pentz & Straus, 1998; Lewis, 1996).

In addition to the psychological and social benefits of gardening, children are able to learn prevocational work skills. They are able to physically see the result of their hard work, which promotes a sense of self-worth and responsibility in their actions. They can see that if they work hard, they will be able to enjoy the benefits of their hard work (Pentz & Straus, 1998).

Research on Special Populations and Gardening

Researchers have also found that students from certain ethnic and socioeconomic backgrounds or who live in urban settings positively benefit from hands-on gardening activities. This includes students who are non-Caucasians, from financially unstable backgrounds, or who are not regularly exposed to open greenspaces and rural areas (Waliczek & Zajicek, 1999; Tanner, 1980; Bradley, et al., 1997; Catsambis, 1995). In addition to reaping the benefits of educational learning, these students can psychologically and socially benefit from constructive hands-on experiences such as this. They have the opportunity to mentor peers, build self-esteem, work together in groups, learn respect for others and property, and feel validated as members of the community by contributing to the aesthetics of their surroundings (Finch, 1995).

Despite the obvious benefits of these activities, many of these youth are unable to participate in such programs. Some barriers to participation include the expense of these programs, family support, poor health, poor personal skills, and other social and personal problems (Hobbs, 1999). In one case study, Pentz and Straus (1998) identified one nine-year-old boy who had demonstrated academic and behavioral problems and poor interpersonal skills in school and at home. He had suffered physical and emotional neglect from his parents before being permanently placed in the care of an aunt. He participated in hands-on gardening activities in a special education program at school. Here he worked with a horticultural therapist and other peers to plan, cultivate, and grow a vegetable garden for harvest. Pentz and Straus (1998) noted that "by completion of the project, [he] had become a more active, animated, constructive participant in the group" (p. 227). His confidence level, relationships with others, and assertiveness were greatly

improved. He also found a sense of belonging to his adoptive family by taking on the role of provider, bringing home vegetables he had grown. When given the opportunity and proper guidance, children from at-risk backgrounds, such as the child in the case study, will positively respond to these activities (Pentz & Straus, 1998).

School Gardening and Teachers

Researchers have found that students primarily learn about plants and the environment through school-related activities. According to Skelly and Zajicek (1998), "this is important because many researchers believe that schools are the instruments to teach environmental education" (p. 582). However, many teachers feel uncomfortable or inadequately skilled with presenting environmental concepts to their students (DeMarco, Relf, & McDaniel, 1999). Armed with skilled, knowledgeable staff and resources, public gardens and other environmental education programs can provide teachers with the tools to supplement environmental education in and out of the classroom. Institutions devoted to the environment have a responsibility to serve their communities in these ways (DeMarco, et al., 1999; Waliczek & Zajicek, 1999; Hobbs, 1999).

Several researchers have documented the direct and immediate effects of hands-on environmental education activities on young students. There appears to be a lack of research examining the long-term impacts of hands-on gardening-related activities. Most of our information on these impacts is based on anecdotal evidence and not on empirical research. What is known about the short-term effects of hands-on gardening activities is that children are able to grasp environmental and scientific concepts. Added benefits include enhanced cognitive development, psychological and emotional growth, and an introduction to work ethic and skills development. Through these activities children are

able to formulate their ideas and opinions on their role in their surroundings which, in turn, may carry them through to adulthood. This translates into heightened environmental sensitivity and action, an increased likelihood of participating in outdoor nature experiences, and even potential career choices in the environment or sciences in the future. If given the opportunity, youth who have not had the opportunity to have these types of experiences can positively benefit in the short-term and the long-term.

CHAPTER 3

METHODS AND PROCEDURES

Methodological Approach

Limited research studies are available within the horticulture research literature to support the justification of the use and purpose of qualitative research within this field. With its roots in the social sciences, qualitative research can challenge the fundamentals of physical science research, and its nature, value, and purpose can be lost on the traditional horticulture, "hard" science researcher. Specifically in the field of horticulture, there is a heavy focus on conducting quantitative research, gathering quantifiable data from rigorously defined variables (Denzin & Lincoln, 2000). Denzin and Lincoln (2000) note it is a challenge for qualitative researchers by the positivists of quantitative research to be thought of as more than spinners of stories and tales of fiction, based not on science, but on "soft" data.

Public Horticulture (PH) is an up-and-coming offset of traditional Horticulture, having developed over the last 30 years or so. PH combines the use of social sciences, such as psychology, sociology, and education, to bring the physical sciences to a more human, relatable perspective. In its essence, PH seeks to examine the relationships of humans with the complex, natural world. I therefore feel the need to justify the use of qualitative research for this study. According to Waliczek, et al. (2003), "some researchers support the notion of integrating both types of methodologies into research designs, thereby gaining the advantages of each while minimizing their disadvantages" (p. 684). With the data gathered from qualitative study, there is the potential to contribute unique insights into studying people-plant interactions than quantitative data reveals

alone. In order to better demonstrate the application of qualitative research in horticulture, it is recommended that more studies on youth and gardening should use this methodology (Waliczek, et al., 2003). There is a place for both qualitative and quantitative research in horticulture, and I assert that the combination of qualitative and quantitative research may tell a more complete story.

Paradigm, Epistemology, and Ontology

The theoretical paradigm I most closely associate with is constructivism. Here the answers are not quite clear-cut or "black and white" and are very situational. They rely on the context in which they exist and are open to interpretation by the individuals who experience their own realities. In the example of this study, the data to be collected will be representative of a small group of people who individually have their own understanding of the PGR program and how they personally experienced it.

Ontology has been described as "the perception of what is real and what is knowable" (Blandford, 2002, p. 16). Constructivism describes the nature of reality as "unknowable" (Hatch, 2002-2003, p. 17). In constructivism, multiple realities exist as they are experienced through a variety of individual perspectives. What is known is a collection of individual "constructions of reality" (Hatch, 2002-2003, p. 17). Therefore, the understanding of a single phenomenon can be experienced differently by several individuals. It is my belief then that individuals who experience or who have experienced Project Green Reach all have different understandings, or multiple realities, about the program. Each individual who participated in the study has a uniqueness central to each individual's reality.

Epistemology takes into account the relationship of the researcher and the researched. In constructivism, the "researcher and subject co-create understandings" (Hatch, 2002, p. 13) about the phenomenon, or experience. Whereas in positivism and postpositivism it is critical to maintain objectivity when the researcher is studying her subject, constructivism is an entirely subjective approach. "What is to be known is an entirely human construction as we travel through life making meaning of our experiences" (Blandford, 2002, pp. 16-17). Therefore, it was my job as the researcher to work in collaboration with the subjects of my study to co-create a general understanding of the PGR program based on how each individual experienced it. Through the realities of the subjects who participated in the PGR program as described by them to me as the researcher, we co-created an understanding of this program.

Research Tradition

For this study, I selected case study as the research tradition. A case study examines and describes a phenomenon within a bounded system (Hatch, 2002). Therefore, specific generalizations or applied theories about the case outside of that system cannot be derived from a case study although assumptions can be ascertained. The bounded system in this study was BBG; the case was the PGR summer program and how these inner city youth experienced gardening activities and what impacts, if any, this had on the development of their belief systems, motivations for environmental action, and general views toward the environment in adulthood. My motivations for selecting the tradition of case study involved a naturalistic, interpretive approach to inquiry; it was not defined in cold, hard facts of objective quantitative research.

In order to further understand the potential benefits of gardening activities and informal education for youth, to bring about awareness of this particular program, and to gain a deeper understanding toward children's gardening, this study is an instrumental case study. As described by Stake (2000), the case itself is not as important as the case in and of itself in contributing an instrumental insight and understanding about the phenomenon in the larger context (Welch, 2002-2003). Indeed, this instrumental case study is useful in describing the impacts on participants of this particular program and documenting the way in which the program is organized. However, it is also generally useful in enlightening the general knowledge and assumptions about the subject while contributing to the literature about the subject.

An important element in a case study is the added benefit of triangulation of methods. According to Flick (1998), "…The use of multiple methods, or triangulation, reflects an attempt to secure an in-depth understanding of the phenomenon in question. Objective reality can never be captured. We can know a thing only through its representations. Triangulation is not a tool or a strategy of validation, but an alternative to validation" (Denzin & Lincoln, 2000, p. 5). The use of three data collection methods, document review, interviews, and observations, is referred to as *triangulation*. Through the use of various methods of data collecting in triangulation, this helps to raise the validity of the study by reducing the potential biases of any one form of data collection method (Glesne, 1999). This also helps to justify the use of qualitative research as a good candidate for obtaining detailed information and rich descriptions about the PGR program. There is a critical element of the PGR case study that offers a vivid description of the program's organization enriched through the use of data that is collected using

interviews, document collection and review, and observations with descriptive notes and personal reflective notes. A case study combines and embraces the use of triangulation in order to tell the whole story.

Site Selection

An ongoing relationship between researchers at the UT Department of Plant Sciences and education staff at BBG provided for the development of this study. PGR is a unique and specially funded program designed especially for inner city students attending Brooklyn's Title I schools. The two aspects of PGR include school-year and summer programming. The school-year programs include children from grades kindergarten through eighth grade, and sessions take place at both the schools and at BBG. The summer program involves a selected group of fourth through eighth graders who have participated in the school-year programs; these sessions take place over a six-week period at BBG. Due to the scope of the study and financial feasibility of studying a more concentrated group of children in the summertime, this study examined the PGR Summer Program at BBG.

Data Collection Methods and Procedures

For the scope and purposes of this study, non-participatory field observations of 2004 Summer Program participants, collection and review of PGR program documents and records, and oral interviews of PGR Summer Program alumni, former staff, and 2004 Summer Program staff were selected as the chosen methods of inquiry. Data collection methods included:

1. Field observations of current participants' activities in the garden. The researcher observed the activities and interactions of participants and instructors, taking field notes

in a journal onsite. Notes on the day's events, activities, and the researcher's personal reflections were written in the journal at the end of each day. These were non-participatory observations, meaning that the researcher simply observed activities and took notes. The researcher had minimal interaction with participants or instructors during program activities.

2. Collection and review of program documents and records. Past documents and records since PGR's creation were reviewed. Documents included notes of planning meetings, annual reports, articles and publications about the program, photographs, classroom activity sheets, student work, and other objects or documents relating to the history and activities of PGR. Each document or object was catalogued for record and assessed for authenticity. A selection of documents was photocopied, with the consent of Brooklyn Botanic Garden staff, for further review by the researcher.

3a. Informal interviews with current PGR Summer Program staff. As time was available, the researcher interviewed the PGR Coordinator and 2004 Summer Program interns. These informal interviews allowed the researcher to gather further information about the program's background, history, organization, and perceived significance to the youth, the community, and BBG. These interviews involved discussions primarily noted during the period when the researcher was making observations at BBG; they were not audiotaped.

3b. In-depth, one-on-one oral interviews with a former staff person and four alumni of the PGR Summer Program. Interview participants signed a consent form in order to participate in the interview and the study. Interviews were semi-structured, including open-ended questions in order to provide for a more flexible, natural flow of

conversation. Prompts were given by the researcher to encourage the interviewee to discuss the subject, not to lead them in a certain line of discussion or assumption. The interviews lasted approximately one hour; they were conducted over the phone. Interviews were audio taped, and interview transcripts were made for further study by the researcher. All interview participants' names were kept anonymous in order to maintain confidentiality; they were assigned pseudonyms, or alternate names, to maintain anonymity.

Study Participants

This study looked at the long-term effects on the targeted population of alumni who were selected as fourth through eighth grade students to participate in the PGR Summer Program at BBG over its fifteen-year history. Therefore, careful and planned selection of the formal interview participants included former staff and alumni of the PGR Summer Program. One former staff person and four alumni were interviewed. They were selected based on the number of potential participants located, contacted, qualified, and willing to participate in the study. It was the preference of the researcher to interview former participants who, at the time of the study, were older than age 18 and who were either involved with or who went through the summer program early in the 1990's, as opposed to more recent staff or graduates of the program. The intent was that the former, more experienced staff person and older interviewees would be able to better indicate the long-term effects of this program than the current, less experienced staff person and younger interviewees. However, due to the transient nature of alumni of this particular program, there were some challenges in locating and making contact with

potential interviewees. For this reason, adjustments to the selection of interviewees were made as needed.

Study Timeline

The researcher made field observations at BBG over the course of three days during the fourth week of this six-week program in July 2004. At this time, the researcher informally interviewed PGR staff about the program and collected program documents and records. This time frame was selected for a few reasons. The restrictions of time, travel expense, and other costs associated with collecting data for this study allowed for only a few days' time for data collection. The fourth week of the six-week program was selected because participants had already had the opportunity to develop relationships with other participants and instructors, familiarize themselves with the program and related activities, gain experience, and demonstrate some notable behavioral reaction, if at all, to the program. During this time, the researcher acquired an informal contact list of all alumni of the PGR Summer Program. This list included alumni names, their parents' names, addresses, phone numbers, and, in some cases, their schools and teachers.

During Winter 2005, the researcher identified potential interview candidates from the alumni list and attempted to locate them. If contact was made, the potential interview candidate was asked a series of questions to determine if s/he qualified to participate in the study. If the interview candidate qualified for study participation and consented to participation, the interview was scheduled. If contact was not made, the researcher continued to identify the next set of potential interview candidates and make attempts to contact them. This process was continued until all potential interview candidates from

Program Years 1990-1996, excluding Program Year 1995 where there was no contact information found, were attempted for contact. Of the 98 potential contacts from Program Years 1990-1994 and 1996, 43 potential contacts had wrong or disconnected phone numbers, and 16 had no available phone number listed. Twenty-eight potential interview participants were never reached. Five potential interview participants who were reached either did not participate in the PGR Summer Program or were not willing to participate in the interview process. Two interview participants who qualified for the study and verbally consented to participation in the study cancelled and did not show for their interviews. Several attempts were made to contact these two individuals and reschedule the interviews; contact was never made, and the interviews never took place. Four alumni who qualified for the study and a former staff person were interviewed.

Interviews took place in Winter and Spring 2005, over the phone. This method of conducting interviews was chosen due to logistics, timeline, and finances for the study. Since it was not feasible due to financial and time restrictions, in-person oral interviews at BBG were not conducted. However, interviews were conducted over the phone, according to the schedule of the researcher and interviewee. The interviews were transcribed, and the researcher evaluated the transcripts over the Spring and Summer 2005.

CHAPTER 4

SUMMARY OF THE PROJECT GREEN REACH SUMMER PROGRAM

Established in 1989, Project Green Reach has been serving about 2,000 students and teachers from Brooklyn's Title I schools each year to promote science learning and environmental awareness through plant-based education. The three primary goals of PGR are to "(1) Work with Brooklyn teachers and students to encourage the use of inquiry-based instruction while meeting the New York City and State science standards; (2) Provide every child in the program with a plant they can care for; and (3) Encourage teachers and students to develop an on-going relationship with BBG" (Personal correspondence with PGR Coordinator, August 6, 2003). "This privately funded program reaches students through their schools, targeted as underserved and underfunded, and demands school involvement" (BBG Annual Report, circa 1993).

Each year BBG receives numerous applications from teachers at Brooklyn's Title I schools, applying to have their classes participate in the school-year program. PGR staff select 20 Title I schools per semester with two classes per school, totaling 40 schools and 80 classes per year. PGR staff work with students and teachers on a variety of topics, ranging from Kitchen Botany to Tropical Environments, at the schools and in the gardens at BBG. During the school-year program, PGR staff develops "a strong network of support for the selected teachers and their students" (Personal communication with the BBG Director of Children's Education, August 23, 2005).

The PGR Summer Program, also known as Junior Botanist Summer Adventures, was a natural extension of the school-year program, starting in Summer 1990. The goals of the PGR Summer Program are "to give children a thorough opportunity to explore the

spectrum of botanical pursuits, from the scientific to cultural; to give children the opportunity to practice skills for understanding plant life and the environment; to take children from Brooklyn on a two day overnight trip to Black Rock Forest where they can experience life in the forest; to give children a chance to be gardeners in our Children's Garden" (BBG Junior Botanist Summer Adventures Application, 2002).

During the school year, PGR staff work with teachers to nominate one or two students who demonstrate an enthusiasm and interest in the PGR activities in the school-year program and who demonstrate a genuine interest in science and horticulture, enthusiasm, self-discipline, and financial need. Children are invited to participate in the summer program and go through an application and interview process in order to be considered for the program. The application includes teacher referral forms, parent/guardian form, and a Junior Botanist application. Based on their applications and interviews, approximately 18-21 participants are selected each year to participate. Although it may change from year to year, students from grades four through eight are selected.

A unique aspect of the summer program is that BBG provides free transportation for each child from his or her home to the Gardens every program day. Each student is asked to contribute five dollars as a cost of the program so that they have an investment in the program. Funding for PGR comes primarily from grant sources outside BBG.

Prior to starting the program for the summer, the PGR staff holds a Parent Orientation for participants' parents. "Given the students' cultural diversity, it is important to assure their parents that special cultural customs are observed" (Report to the XXXXX Foundation, 2000). This orientation not only serves to educate parents

about how the program is operated, but it also gives them an opportunity to meet PGR staff and other participants' parents.

"The [program consists] of the following key elements – daily gardening to cultivate and harvest their own plots in the Children's Garden…, plant studies and science investigations, cooking and craft projects to learn the use of plants, and day trips and overnight camping to extend their environmental studies to other sites" (Personal communication with the BBG Director of Children's Education, August 23, 2005). Although the program schedule and activities continue to evolve over the years, the current program lasts six weeks, from about 9:00 a.m. to 2:00 p.m., three days a week. Each day, participants "do hands-on science, fine arts and other types of activities related to the theme, while spending some of the morning hours enjoying horticulture in the Children's Garden" (BBG Junior Botanist Summer Adventures Application, 2001). The program boasts "a 4:1 student/teacher ratio, thereby ensuring a comfortable and highly productive learning environment" (Report to the XXXXX Foundation, 2000).

Traditionally, participants were in the summer program for only one summer. However, in recent years, the program has evolved to include first-year participants, or the Junior Botanists, in the Junior Botanist Summer Adventures Program as well as returning, older participants, known as Plant Investigators, in the Plant Investigator Summer Science Program. These programs run simultaneously in the summer. Plant Investigators have the opportunity to work with the younger Junior Botanists, mentoring them in their gardening and other activities.

Although activities may change annually, a selection of activities that the children have participated in include: working with partners on garden plots in the Children's

Garden, learning about how to take care of plants, learning about biodiversity, using the Gardens to reinforce concepts on botany and biology, cooking with fresh fruits and vegetables harvested from the garden, making artwork, writing poetry or in journals, doing scientific lab experiments at BBG research facilities, making observations in the greenhouse or conservatories, and working with peers to solve scientific problems. Concepts they are introduced to include: photosynthesis, plant parts, plant functions, discovery though reasoning, asking questions, and observation, animal roles in pollination and seed dispersal, ethnobotany, composting and recycling, and other science concepts through exploration of the natural world.

Another unique aspect of the program is the participants have the opportunity to go on a three-day overnight camping trip. For many participants, this is often their first experience of camping in the wilderness. While on the trip, students continue doing science activities, including making observations and discovery, using the woodland and forest settings. They also hike, swim, do other recreational activities, and enjoy being out in nature. This trip is sponsored through private funding and is offered at no cost to the families.

The program ends with Graduation Day. On Graduation Day, parents are invited to attend the ceremonies. PGR staff and participants show parents student artwork, craft projects, and lab experiments. Participants give presentations and do skits on various activities they have worked on throughout the six-week program. They also give garden tours of the PGR garden plots in the Children's Garden. All attendees sample refreshments made using recipes with fresh produce from the garden or recipes that are culturally representative of the participants. Finally, PGR staff holds an Awards

Ceremony where they give children award certificates for successful completion of the program. Each child is also given their very own set of gardening tools to take home. A class photo is taken, and children typically exchange phone numbers and addresses.

Follow-up with past participants is typically through Junior Botanist Reunions. These reunions generally have approximately five to as many as twenty past participants, family members, and friends in attendance. Reunions are conducted to keep in contact with participants, promote participation in next year's program as Plant Investigators, learn about participants' activities over the year, get feedback from parents, work on craft projects, and enjoy fellowship.

CHAPTER 5

PRESENTATION OF FINDINGS

This chapter is printed with the intention of being revised and published as a paper in a horticulture and environmental education research journal. My primary contributions to this paper include (1) selection of the topic and development of the study into a work examining the Project Green Reach Summer Program, (2) identification of the study area, (3) data collection at the site, including observations and documents, and data analysis, (4) selection of study participants and interviews, (5) much of the gathering and interpretation of literature, and (6) most of the writing.

Abstract

This study examined Project Green Reach (PGR), one program of the Children's Education Program at Brooklyn Botanic Garden (BBG). Located in Brooklyn, NY, BBG is a public garden that has served as a model program for garden-based youth education since 1914. PGR utilizes both the indoor classroom and outdoor laboratory to engage K-8 students and teachers at Brooklyn's Title I schools in informal learning about science. Every year, PGR instructors select a small group of students into the summer program where they work in teams on garden and science projects at BBG. A case study was conducted to document PGR's summer program as a potential model for informal science youth education and to investigate the effects of PGR on inner city youth. Field observations of PGR's summer program participants and collection of program documents were conducted during the 2004 Summer Program. In 2005, phone interviews were conducted with four adult PGR Summer Program alumni and one former staff member who discussed their experiences while participating in the program and described the meaning of PGR in their lives. From the data collected and triangulated through document review, observations, and interviews, seven themes emerged: (1) PGR participants come from challenging home and school environments, (2) PGR developed

academic and interdisciplinary skills, (3) Participation increased understanding of science concepts and developed gardening skills, (4) PGR fostered environmental awareness, (5) PGR supported social development and personal growth, (6) PGR was a positive life experience, and (7) BBG is culturally significant to the participants' community. From the results, it is concluded that PGR has had an impact on participants' lives, showing that PGR had positive influence on their views towards BBG, gardening, and science.

Introduction

With an increasing number of children's gardens and youth gardening programs being offered through schools, nature centers, public gardens, and other related institutions throughout the world, more children now have opportunities to be engaged in informal learning experiences about the environment, nature, and science (Finch, 1995). Researchers have found that students from certain ethnic and socioeconomic backgrounds or who live in urban settings positively benefit from hands-on gardening activities. This includes students who are non-Caucasians, from financially unstable backgrounds, or who are not regularly exposed to open green spaces and rural areas (Waliczek & Zajicek, 1999; Tanner, 1980; Bradley, Waliczek, & Zajicek, 1997; Catsambis, 1995). In addition to reaping the benefits of learning, these students can psychologically and socially benefit from hands-on gardening activities as well. They have the opportunity to mentor peers, build self-esteem, work together in groups, learn respect for others and property, and feel validated as members of the community by contributing to the aesthetics of their surroundings (Finch, 1995).

Despite recognizing the obvious benefits of hands-on gardening activities, many youth are unable to participate in such programs. Some barriers to their participation

include the expense of many of these programs, lack of family support, poor health, poor personal skills, and other social and personal problems (Hobbs, 1999). When given the opportunity and proper guidance, children from at-risk backgrounds can positively respond to these activities (Pentz & Straus, 1998).

Researchers have found that students primarily learn about plants and the environment through school-related activities. According to Skelly and Zajicek (1998), "this is important because many researchers believe that schools are the instruments to teach environmental education" (p. 582). However, many teachers feel uncomfortable or inadequately skilled with presenting environmental concepts to their students (DeMarco, Relf, & McDaniel, 1999). Armed with skilled, knowledgeable staff and resources, public gardens and other environmental education programs can provide teachers with the tools to supplement environmental education in and out of the classroom. Institutions devoted to the environment have a responsibility to serve their communities in these ways (DeMarco, et al., 1999; Waliczek & Zajicek, 1999; Hobbs, 1999).

In 1914, Brooklyn Botanic Garden (BBG) established a teaching garden for youth in New York City. The main goal of this garden was to provide practical skills and life lessons through hands-on gardening experiences. It was the first program of its kind at a public garden in the world. Ninety years later, the BBG Children's Garden and its Children's Gardening Program (CGP) serve as prototypes that many other programs have emulated around the world (Stone, 1984).

One component of BBG's youth education programs is Project Green Reach (PGR). PGR is a specially funded outreach program designed to utilize hands-on, inquiry-based learning to promote science education and environmental awareness. In

education, inquiry-based learning is defined as “experience before explanation” (Personal communication with Dr. Michael Bentley, August 29, 2005). "Inquiry is an approach to learning that involves a process of exploring the natural or material world, and that leads to asking questions, making discoveries, and rigorously testing those discoveries in the search for new understanding." (National Science Foundation, 2000, p. 2) Children have the opportunity to be engaged in their own learning by having firsthand experience with a phenomenon or an event and then ask questions and have discussion on their experience.

PGR has been serving K-8 students and teachers in Brooklyn’s Title I schools since 1990. To be identified as a Title I school, a school has a high number of children who live in impoverished areas and who are on free or reduced lunch programs, and the school is considered to be at risk of failing to meet the performance standards of state and federal agencies. Title I schools receive special federal funding and programs due to this status (Wisconsin Department of Public Instruction, 2004). PGR is comprised of a school-year program for Title I students in grades K-8 and a summer program for selected older students who participated during the school year.

Through PGR, BBG has acknowledged its role within the community as a resource for science education. Recognizing complementary missions of education, BBG and schools in Brooklyn have created a partnership to provide unique hands-on outdoor activities for urban students and teachers (Sutter, 1990; Parker & Wodzinski, 2000). Students who participate in PGR often come from challenging home and school environments. Anecdotal evidence has been interpreted to mean that after participating in the summer program, these students develop improved confidence and academic skills, “quickly evolv[ing] into young gardeners and scientists” (Personal communication with

PGR Coordinator, August 6, 2003). The PGR Summer Program, also referred to as the Junior Botanist Summer Adventures program, is specifically designed to eliminate certain barriers, such as funding and transportation, that typically prevent targeted students from participating in these types of activities. PGR and BBG staff members would like to determine the long-term impacts on the selected students who participate in the PGR Summer Program (Personal communication with PGR Coordinator, August 6, 2003).

One trend in youth gardening research has focused on examining the effects of school gardening activities on youth participants (Phibbs & Relf, 2005; DeMarco, et al., 1999; Skelly & Zajicek, 1998; Waliczek & Zajicek, 1999). There have also been studies that document the health benefits of gardening on youth, including improved nutrition (Poston, Shoemaker, & Dzewaltowski, 2005; Lineberger & Zajicek, 2000). Several researchers have documented the direct and immediate effects of hands-on environmental education activities on young students. However, there is little research examining the long-term impacts of hands-on gardening-related activities, from youth to adulthood, and how public gardens play a role in providing plant-based educational experiences to members within the community. Most information is based on anecdotal evidence and not on empirical research (Phibbs & Relf, 2005). Therefore this study would contribute to understanding the long-term effects of gardening on people, particularly the inner city population.

The purpose of this exploratory study was to investigate the long-term impacts of a hands-on gardening program on inner city youth, to document PGR as a potential model for informal science learning and plant-based educational experiences for

educating youth in the public garden forum, and to add to the qualitative research literature and general understanding about the children's gardening phenomenon in particular and the field of horticulture in general. This study focused on the PGR Summer Program, also known as the Junior Botanist Summer Adventures program. The Children's Gardening Program at BBG was selected for this study because it has a rich, extensive history of serving as a model for children's gardening programs at public gardens around the world and demonstrates how programs like PGR serve special populations, such as inner city youth, in their communities.

Materials and Methods

For this study, a qualitative approach was selected "to allow for the collection of detailed descriptive data" (Hamilton & DeMarrais, 2001). This study was conducted within a social constructivist paradigm. Here the answers are not quite clear-cut, or "black and white," and are very situational. They rely on the context in which they exist and are open to interpretation by the individuals who experience their own realities. In the example of this study, the data collected was representative of a small group of people who individually had their own understanding of the PGR program and how they personally experienced it.

Epistemology takes into account the relationship of the researcher and the researched (Hatch, 2002). In constructivism, the "researcher and subject co-create understandings" (Hatch, 2002, p. 13) about the phenomenon, or experience. "What is to be known is an entirely human construction as we travel through life making meaning of our experiences" (Blandford, 2002, pp. 16-17). Therefore, it was the job of the researcher to work in collaboration with the study participants to co-create a general

understanding of the PGR program based on how each individual experienced it. Through the realities of the people who participated in the PGR program as described by them to the researcher, an understanding of this program was co-created.

The case study was selected as the research tradition. A case study examines and describes a phenomenon within a bounded system (Hatch, 2002). As described by Stake (2000), the case itself is not as important as the case *in and of itself* in contributing an instrumental insight and understanding about the phenomenon in the larger context (Welch, 2002-2003). Therefore, specific generalizations or applied theories about the case outside of that system cannot be derived from a case study although assumptions can be ascertained. The bounded system in this study was BBG; the case was the PGR Summer Program and how inner city youth experienced gardening activities and what impacts, if any, this had on the development of their belief systems, motivations for environmental action, and general views toward the environment into adulthood.

Site Selection

An ongoing relationship between researchers at the University of Tennessee Department of Plant Sciences and education staff at BBG provided for the development of this study. PGR is a unique and specially funded program designed especially for inner city students attending Brooklyn's Title I schools. The two aspects of PGR include school-year and summer programming. The school-year programs include children from grades kindergarten through eighth grade, and sessions take place at both the schools and at BBG. The summer program involves a selected group of fourth through eighth graders who have participated in the school-year programs; these sessions take place over a six-week period at BBG. Due to the scope of the study and financial feasibility of studying a

more concentrated group of children in the summertime, this study examined the PGR Summer Program, or Junior Botanist Summer Adventures, at BBG.

Data Collection Methods and Procedures

For the scope and purposes of this study, non-participatory field observations of 2004 Summer Program participants, collection and analysis of PGR program documents and records, and oral interviews of PGR Summer Program alumni, former staff, and 2004 Summer Program staff were selected as the chosen methods of inquiry.

Observations

Observation is one data collection method that is used to understand the context and perspective in which the participant has experienced something (Hatch, 2002). Patton (1990, pp. 202-05) described five strengths for the use of observational data in qualitative research. They include:

(1) Direct observation of social phenomena permits better understanding of the contexts in which such phenomena occur;

(2) Firsthand experience allows the researcher to be open to discovering inductively how the participants are understanding the setting;

(3) The researcher has the opportunity to see things that are taken for granted by participants and would be less likely to come to the surface using interviewing or other data collection techniques;

(4) The researcher may learn sensitive information from being in the setting that informants may be reluctant to discuss in interviews; and

(5) Getting close to social phenomena allows the researcher to add his or her own experience in the setting to the analysis of what is happening (Hatch, 2002).

When used effectively in combination with other data collection methods, such as interviews and document analysis, observation can be a powerful tool in understanding an even richer understanding of study participants' worlds and realities.

In 2004, the researcher made field observations at BBG over the course of three days during the fourth week of this six-week program. Two six-and-a-half hour observation periods took place on the first and third days of the researcher's visit. During this time, the researcher also informally interviewed PGR staff about the program and collected program documents and records. This time frame was selected for a few reasons. The restrictions of time and expense allowed for only a few days' time for data collection. The fourth week of the six-week program was selected because participants had already had the opportunity to develop relationships with other participants and instructors, familiarize themselves with the program and related activities, gain experience, and demonstrate some notable behavioral reaction, if at all, to the program.

During the two days of observations, the researcher observed the activities and interactions of participants and instructors, taking field notes in a journal onsite. Notes on the day's events, activities, and the researcher's personal reflections were written in the journal at the end of each day. These were non-participatory observations, meaning that the researcher simply observed activities and took notes. The researcher had minimal interaction with participants or instructors during program activities.

Document Collection and Analysis

The collection of *unobtrusive data*, such as artifacts, photographs, paper documents, personal communications, and records, has been used historically to understand and represent various cultures and peoples throughout history. According to

Hatch (2002), "unobtrusive data are nonreactive. They can tell their own story independent of the interpretations of participants, and they can be gathered without disturbing the natural flow of human activity" (p. 119). This type of data can help researchers weave together an understanding, or a story, of the participants' experience by providing "alternative insights" without interfering with the regular course of human activity, where the presence of the research in observation and interviewing may have an effect (Hodder, 2000; Hatch, 2002).

On the second day of the researcher's visit to BBG, the researcher collected and began analyzing documents found in the PGR and BBG archives. Past documents, records, and photographs since PGR's creation were analyzed. Documents included notes of planning meetings, annual reports, articles and publications about the program, photographs, classroom activity sheets, student work, and other objects or documents relating to the history and activities of PGR. Each document or object was catalogued for record and assessed for authenticity. A selection of documents was photocopied for further review by the researcher.

Interviews

As Atkinson and Silverman (1997) have described, we live in an "interview society." We are inundated with various forms of interviewing on a daily basis. We rely heavily on the use of the interview to gather information or a rich, descriptive understanding from others on things and events in our world (Fontana & Frey, 2000). In qualitative research, interviews can be used in combination with other data collection methods, like observation and document analysis, to reconstruct events and experiences that were not observed by the researcher, to "reveal the meanings and significance of

artifacts collected in the field" (Hatch, 2002, p. 91), or to come to a deeper understanding of the participants' experiences through a descriptive account (Hatch, 2002; Lincoln & Guba, 1985).

As time was available during the observation period, the researcher informally interviewed the PGR Coordinator and 2004 Summer Program interns. These informal interviews allowed the researcher to gather further information about the program's background, history, organization, and perceived significance to the youth, the community, and BBG. They were not audiotaped.

During the observation period while at BBG in 2004, the researcher also acquired an informal contact list of alumni of the PGR Summer Program. This list was compiled from bus lists, address labels, and other pieces of paper that included alumni names, their parents' names, addresses, phone numbers, and, in some cases, their schools and teachers.

In 2005, the researcher identified potential interview candidates from the alumni list and attempted to locate them. If contact was made, the potential interview candidate was asked a series of questions to determine if s/he qualified to participate in the study. If the interview candidate qualified for study participation and consented to participation, the interview was scheduled. If contact was not made, the researcher continued to identify the next set of interview candidates and made attempts to contact them. This process was continued until all potential interview candidates were attempted for contact.

Study Participants

This study looked at the long-term effects on the targeted population of alumni who were selected as fourth through eighth grade students to participate in the PGR Summer Program at BBG over its fifteen-year history. Therefore, the selection of the

formal interview participants included four alumni and one former staff member of the PGR Summer Program. They were selected based on the number of potential participants located, contacted, qualified, and willing to participate in the study. It was the preference of the researcher to interview former participants who, at the time of the study, were older than age 18 and who were either involved with or who went through the summer program in the early 1990's, as opposed to more recent staff or graduates of the program from Program Years 1997 or later. The intent was that the more experienced staff person and older interviewees would be able to better indicate the long-term effects of this program than less experienced staff and younger participants.

Due to the transient nature of alumni of this particular program and inconsistent records of PGR alumni from BBG, there were some challenges in locating and making contact with potential interviewees. For this reason, adjustments to the selection of interviewees were made. Instead of making a purposeful and balanced selection of participants representing different genders, age groups, participation years, and other similar characteristics, the researcher attempted to contact everyone for Program Years 1990-1996, except for 1995 where there was no contact information available. Although it was not possible for a purposeful selection of interview participants and due to the exploratory nature of this first study of the PGR Summer Program, the researcher determined that the information gathered from the five individuals who were interviewed set a sufficient example to begin to represent alumni participants' experiences and allow for an exploratory study of the meaning of PGR for its alumni participants.

Of the 98 potential contacts from Program Years 1990-1994 and 1996, 43 potential contacts were wrong or disconnected phone numbers, and 16 had no phone

number listed. Twenty-eight potential interview participants were never reached. Five potential interview participants who were reached either did not participate in the PGR Summer Program or were not willing to participate in the interview process. Of the five who did not participate, two interview participants who qualified for the study and verbally consented to participate in the study cancelled but did not appear for their interviews. After several attempts, no contact was made to reschedule. Four alumni who qualified for the study and a former staff person were interviewed. Descriptive characteristics of the five interview participants are shown in Table 4.1.

An interview guide was developed by the researcher to guide participants in discussing their experiences of the PGR summer program. Questions in the interview guide, shown in Figures 4.1 and 4.2, were developed using interview guides from the researcher's experiences learned about PGR from the observational period and previous research examining participants' experiences of the BBG Children's Gardening Program (Tims, 2003; Blandford, 2002). Interviews were semi-structured and included open-ended questions to provide for a more flexible, natural flow of conversation. Prompts were given by the researcher to encourage the interviewee to discuss the subject, not while

Table 4.1. Name, gender, age, cultural background, year participated in PGR, and education characteristics of study participants.

Name	Gender	Age (years)	Cultural Background	Year (& Age) participated	Education
Sasha*	Female	24	South American	1990 (age 9)	Currently attending college
Deborah	Female	24	African American	1990 (age 9)	Bachelors degree
Richard*	Male	22	Caribbean American	1991 (age 9)	Bachelors degree
Mary**	Female	22	Haitian American	1993 (age 10)	Bachelors degree
Sally	Female	---	Former PGR Instructor	1989-2000	Bachelors degree

*First generation child within family unit; Parents non-native to U.S.
** Born in another country.

1. Tell me about the community you grew up in.

2. Tell me about your gardening experiences, if any, as a child prior to participating in the program and then after participation.
   Possible Prompts: Did you garden at home? In school? In a community garden?
   Did your family have a garden at home?
   Who did you garden with?

3. Describe your experiences at the BBG's Project Green Reach Junior Botanist Program as a child.
   Possible Prompts: What did you like? Dislike?
   What stands out in your memory? What do you remember the most?
   What were your favorite activities? Least favorite activities?
   How old were you? What grade were you in when you participated?
   How did you find out about the program?
   Describe how you felt when you found out you were selected to participate.
   Did you eat the vegetables you harvested from the garden? Did you share with your family?

4. Describe your gardening experiences while participating in the program.
   Possible Prompts: What did you take interest in?

5. Tell me about the staff in the program.
   Possible Prompts: Did you keep in touch with him/her afterwards?

6. Describe your memories of other Junior Botanists/Plant Investigators who participated with you.
   Possible Prompts: Whom did you make friends with?
   How old were they?
   How did you view the other participants?

7. What did the Summer Program mean to you as a child?

8. What do you think is the likelihood of your participating in the Summer Program without the special funding and transportation?

9. What meaning, if any, does the Summer Program hold for you as an adult?

10. Tell me about how this experience has influenced your life.
    Possible Prompts: Do you visit BBG?
    Do you have children? Do you bring them to BBG?
    Do you spend much time outdoors?
    Do you garden now?

Figure 4.1. Interview guide for former PGR Summer Program participants.

11. Demographic Questions:
    Age
    Gender
    Family Background – Ethnicity, Race, Nationality
    Educational background
    Profession/Occupation

Figure 4.1. Continued.

1. Tell me about your educational and gardening background.

2. How long were you with the program?

3. Tell me about how the program was started.

4. In your own words, describe what you found to be the most important features for the success of the program.

5. Did the goals of the program change from inception until you left?

6. Did your procedures for selecting children to participate in the program change over the course of your involvement? How? What selection criteria were most helpful or important?

7. Tell me what you think has led this program to achieve success over such a long period.

8. Describe what is unique about this program.

9. Describe how you think participation in this program affects or changes the children who participate.

10. What would you do new or differently if you had to do it over again?

11. Have you kept in touch with any of the past participants? If so, please describe your relationship. Have you received any feedback from past participants about the program which you are able to recall and share?

Figure 4.2. Interview guide for former PGR Summer Program staff.

leading them in a certain line of discussion or assumption. The interviews lasted approximately one hour. Due to the restrictions of finances and time, interviews were conducted over the phone. Interviews were audiotaped and later transcribed for further study by the researcher. All interview participants' names were kept anonymous in order to maintain confidentiality and were assigned pseudonyms to maintain anonymity.

Data Analysis

The use of qualitative research, in this instance a case study, is a good method for obtaining detailed information and rich descriptions about the PGR program. An important element in a case study is the added benefit of triangulation of methods. The use of three data collection methods, document review, interviews, and observations, is referred to as *triangulation*. A case study combines and embraces the use of triangulation to better tell the whole story. According to Flick (1998), "…The use of multiple methods, or triangulation, reflects an attempt to secure an in-depth understanding of the phenomenon in question. Objective reality can never be captured. We can know a thing only through its representations. Triangulation is not a tool or a strategy of validation, but an alternative to validation" (Denzin & Lincoln, 2000, p. 5). Through the use of various methods of data collecting in triangulation, this helps to raise the validity of the study by reducing the potential biases of any one form of data collection method (Glesne, 1999). There is a critical element of the PGR case study that offers a vivid description of the program's organization enriched through the use of data that is collected using interviews, document collection and review, and observations with descriptive notes and personal reflective notes. This study also employed triangulation as an analysis tool to examine and rigorously test themes that emerged from the data.

In this study, data analysis began soon after data collection began. The researcher reviewed notes on all documents, records, and photographs and copies of materials made by the researcher during the observational period. Notes and reflections made by the researcher during observations were also reviewed. After the interview tapes were transcribed, the researcher carefully read through the transcripts and made handwritten notes that identified possible themes from the data. Upon re-evaluation of the observational notes, documents, and written personal reflections, a second reading of the interview transcripts was done. During the second reading of the transcripts, the researcher color-coded different topics and themes that had frequently emerged in the data. Color coding helped the researcher to sort through the data (Hamilton & DeMarrais, 2001). The data from the coding was carefully triangulated with data found through observations and document analysis. From this triangulation of the three data collection methods, seven themes emerged. These themes described the experiences of participants in PGR.

Results and Discussion

Through data analysis and triangulation, seven major themes emerged from the data about PGR Summer Program participants. The seven themes were: (1) PGR participants come from challenging home and school environments, (2) PGR developed academic and interdisciplinary skills, (3) Participation increased understanding of science concepts and developed gardening skills, (4) PGR fostered environmental awareness, (5) PGR supported social development and personal growth, (6) PGR was a positive life experience, and (7) BBG is culturally significant to the participants' community.

Theme 1 ***Participants Come From Challenging Home and School Environments***

The first major theme that emerged from data analysis was that PGR Summer Program participants come from challenging home and school environments. Handwritten notes from a PGR instructor described several points of concern for the welfare of a particular child who participated in the early years of the program. The instructor had noticed a "thing on her head," which was a sore that had developed from an unhygienic accumulation of dandruff. The child reported having "severe, debilitating neck pain" as a result of aggressive wrestling with her brothers after being left home alone. The instructor also made notes about the child reporting not having anything to eat for breakfast on most days and sleeping on comforters on the floor because her brothers had broken their bunk bed by jumping on it. Other notes described troubled financial and health issues at different children's homes.

These challenging home environments appeared to be a significant factor in the selection of participants for the program. In another reviewed document, the *2000 Report to the XXXXX Foundation*, a financial supporter of the 2000 Junior Botanist Summer Adventures Program, explained that Junior Botanists who participate in the program "come from economically disadvantaged families and would not have the means for attending another summer program. BBG provides free transportation to and from the Garden, which ensures that the children, who often live far from the Garden, have the opportunity to participate in the program." This theme was evident in a PGR program description updated in July 2003, which described how students selected to participate in the summer program "must be from financially disadvantaged homes." In addition, participants must also attend a Title I school.

Observations found that although most of the children appeared to be active and friendly, there was one introverted young girl who kept to herself and was very quiet. The young girl, a foster child, worked with her garden partner, a vivacious, young boy who did a lot of socializing with the other children, and she seemed to follow him around the garden at times. However, she mostly stayed alone, working intently on her projects, but the researcher noted that the girl seemed to be most happy when she was interacting with the two female interns. She clung to them at times and appeared to smile most when interacting with them.

Interviews of the alumni participants described growing up in housing projects or having several friends who lived in housing projects. Participants described living in a neighborhood or going to a public school where there was drug use and violence. Deborah talked about how several of her classmates would cut classes and not go to school on a regular basis.

When asked to describe the community in which she grew up, Mary said:

> "…It was a poor neighborhood. It was very homogenous, African Americans, mostly Caribbean Americans. There was a lot of noise….I remember a lot of noise. I was very protected because I came from school to home, and my parents didn't let me walk around the neighborhood much.…There was a lot of drug use, and there was a lot of…little dime bags [dime bags are little plastic baggies in which drugs are sold on the street] around and things like that.…I thought the dime bags were…cute. [They were] something different for my dolls."

Mary and Deborah lived in multi-family homes; Mary lived in a two-bedroom apartment with her parents, her two brothers, and her cousins before moving into a three-bedroom

apartment in a housing project. Richard, who also participated as a youth, grew up in a single-parent home with his mother and sister; he indicated that he did not spend much time with his father as a child.

Often the children who participate in PGR do not have the financial ability to participate in gardening programs. Richard described wanting to participate in a community garden directly across the street from where he lived after he had participated in PGR. He felt skilled enough to work in the garden, but due to a tight family budget, he was unable to participate.

Examples like these illustrate how BBG reaches out to inner city children, a typically underserved population in its community. There have been no documented cases found in the review of the literature about a public garden having a hands-on, plant-based educational program directly focused on serving inner city youth. Much of the research and anecdotal evidence on plant-based programs for a special population such as inner city youth has examined outdoor programs for juvenile delinquents or school-based programs for inner city students (Rahm, 2002; Finch, 1995; Snell, 2003; Rahm & Grimes, 2005).

Theme 2 ***PGR Participants Developed Academic and Interdisciplinary Skills***

Not only did participants develop science and reasoning skills through their participation in PGR, but through plant-based education, participants developed other skills, including writing, public speaking, geography, artistic, and cooking skills. Observations found that participants had displayed the Plant Investigator Poetry Café, an exhibition of student work on acrostic poetry and haiku they had written. They also

sampled homemade pickles and jam that participants had made from freshly harvested fruits and vegetables from the garden.

PGR activity sheets and student work on family trees encouraged students to celebrate their families' heritage and history and learn about the geography of their country of origin. Participants were encouraged to work with their parents on a description of their country of origin, the plant material that grew there, and a family recipe that used vegetables or fruit from the country of origin. Examples of student work included written songs, artwork, and journal entries. Photos showed pictures of children writing in journals and working on arts and crafts projects made with plant materials. A BBG Annual Report described the children as participating in "science-related arts, crafts and music" (circa 1993).

All participants described working in the greenhouse as a favorite memory. Deborah recounted memorizing plants through a quiz game:

> "I know they had an area with nothing but glass around it….They would take us in there, and they would ask us basically what type of plant…and describe it to us….Sometimes they would ask us before we leave…'Do you remember what this was?'…Like a little game, and I think the person who remembered,…they gave us a little prize…so it was fun because we were trying to get the prizes. We were trying to remember 'What was this? Do you all remember?'…So we were trying to help each other out….I thought that was fun because we get something free. I said, 'Okay, I try to remember as much as I can,' but I can't remember everything….We felt kind of bad because a person would get the stuff, and…we didn't get [any]thing. One day we didn't get anything, and we felt bad because

we couldn't remember [any]thing. So…we had to be very attentive when they talked, you know beware. I said, 'Could we write something down so we could remember?' I know we couldn't write anything because they wanted us to use our heads and really remember a lot of things….We just had to try to remember…because there was so many things there, and for us to remember, [it made] my head [hurt]."

Deborah also recounted her experience of journal writing and public speaking in PGR and how she drew upon her experiences when she was in college.

"Actually, it had to help me…because after I took…speech in college,…I didn't realize by me speaking from these journals that it was actually going to help me along in college….I mean it was nerve racking, because you're standing there and you're speaking in front of [a group of people]. And it's just nerve racking. And…we had to speak loud. We had to pronunciate and see who was paying attention because you can tell who was not paying attention, who was making googley faces at you, trying to make you laugh. Some people would try anything to try to get us to laugh….[The instructors] knew who it was, and they'd tell them to stop,…and we tried to be serious about it. But sometimes we all had to laugh about it because it was just too funny. But [this activity] kicked in the nerves for most people because some people [were really] nervous, and they could not speak in front of us. So we tried to find a way to help them out to get them…relaxed…. And then when I got into college, it was like 'Whoa, I got speech.'…I'd be in a bigger crowd, and the classes were big, older people, bigger people, my professor, and we were getting graded. You see here [at PGR] we [weren't] getting graded."

Richard recalled visiting BBG with his mother to attend various cultural events, including an African music festival. He credited BBG with bridging his love for music into his life. "The Garden actually bridged one part of what I wanted to do, one part of my life to another." In PGR, he remembered making musical instruments out of cups and seeds.

> "It forced us to look outside the box when we were thinking about plants. We didn't just grow them and bring home vegetables and…things of that nature. We drew pictures. We spoke about our experiences while we were there. We made instruments."

The use of gardening activities contributing to interdisciplinary learning is not new. Other studies have found that through gardening activities, children can learn different skills, such as art, math, geography, history, writing, and nutrition (Lewis, 2005; DeMarco, et al., 1999; Skelly & Zajicek, 1998).

Theme 3 ***Participation in PGR Increased Understanding of Science Concepts and Developed Gardening Skills***

PGR participants have several opportunities to become young gardeners and scientists. A handwritten note from a mother whose son had participated in PGR expressed not only gratitude to the BBG staff for her son's opportunity to participate in the program but acknowledged the science concepts and gardening skills he learned:

> "[My son] really enjoy taking part in the program. He learn and understand a lots about vegetable, plant, leaves, stem, seeds, fruit, and flower. He came home and share the knowledge with the rest of the family about his day. He gain lots of experience at the garden. He recognize and value the work, it take in harvest an garden. …It is a summer we will always remenable [remember]."

An instructor's lesson plans and activity worksheets showed the science and gardening concepts to be covered for a particular lesson. They included garden tools, garden etiquette, plant parts, photosynthesis, and various other botany and garden-related activities.

Instructors make use of several BBG facilities, including the various garden areas of BBG, their research lab facilities, and greenhouses. Observations found participants working in the Children's Garden and doing a scavenger hunt on finding plants and other nature-related objects throughout the grounds of BBG. The Plant Investigators went to the BBG research facilities across the street from the garden. Here they dressed in white lab coats and worked on science experiments in the lab, making observations and employing the use of the scientific method. The children were divided into two groups. One group was testing the sensitivity reaction of sensitive plants when they dropped various objects of different weights onto the plant. The second group was testing how marigolds reacted to different solutions when watered. Each group had a control and experimental subject. The children made measurements and recorded data. The lab experiments would result in lab reports and final presentations by the end of the summer program.

All participants stated that although they did not currently garden today, they felt skilled with the knowledge and the ability to know how to garden today. They all indicated that they do plan to garden in the future.

Participants in the program typically demonstrated an aptitude for science prior to participation in PGR. According to a program description of PGR, "a high interest in science" is one of the factors that contributes to their selection to participate in the

Summer Program. PGR helped to cultivate this interest in science even further. In high school, after participation in PGR, Richard, Sasha, and Deborah described participating in several science-related activities, including for Sasha participating in a program through the local utility district and for Richard and Deborah taking lab courses and mentoring peers in science in high school. Although the other alumni participants did not pursue careers in science, Richard chose to pursue a degree in Biology and would like to have a career in medicine, where he hopes to be a pediatric doctor.

These examples support anecdotal evidence from PGR instructors that as a result of participation in PGR, children evolved into young science investigators and gardeners. This also supported previous research that children learn about science and nature and develop gardening skills in a hands-on gardening program at schools (Rahm, 2002; Waliczek, Logan, & Zajicek, 2003; Skelly & Zajicek, 1998). This is also similar to findings of Blandford (2002) and Tims (2003) who found that children who participated in a children's gardening program at a public garden learned about science and nature while working with plants and developed gardening skills through "learning by doing" (Blandford, 2002, p. 30).

Theme 4 ***PGR Fostered Environmental Awareness and Appreciation for Participants***

Hands-on, first-person experiences working in and exploring the garden at BBG contributed to a better awareness and appreciation for the environment. After describing New York City as "nothing but a concrete jungle," Richard stated that when asked how the program had meaning for him:

> "I enjoyed the program. It did help me grow I believe…probably moreso with my consciousness and with the things I think about and my appreciation for nature

because I do enjoy seeing beautiful plants….I do respect nature. A lot of people just see trees and plants and could care less about what they see….But I do ultimately have a respect for nature….And so…it's changed my consciousness. It has made my consciousness in growing as a person, and I think as a child you need to be exposed to different things. I think you need—I know you need to have different sorts of experiences in your life. And that's one of those experiences I wouldn't give back for anything. And I wish that my nephew and niece had the opportunity to do the same exact thing. But they're not living in New York so…I don't know what kind of programs they have where they live, if any types of programs of that nature are available that are free….It was a wonderful experience for me. And it was very meaningful. And I think back about that experience,…I think about it whenever I'm passing by the gardens."

In her interview, the most memorable experience for Mary was the variety of bright colors while visiting BBG on a daily basis. Mary was born in Haiti and lived there for a few years before immigrating with her family to New York. The bright colors of nature at BBG reminded her of her native country and positive feelings. When asked what she liked about participating in the program, she said:

"One of the things I remember is the heat of the sun on my back and [being] bent over in my garden. I remember that….That was really great. I remember the colors. [I am] still very affected by the colors. I'm in a better mood when there's a lot of colors around. Not that I knew it back then, but I just knew that I loved [it].…Even on cloudy days, it felt warmer being in the gardens and being outside because [there was] a lot of the colors….I'm in a better mood when there are

colors around, when there are lots of greens and reds and blues. I remember feeling very healthy….I knew that breathing the air wasn't all that great but breathing the air in Brooklyn Botanical Gardens was a pretty side of Brooklyn, not where I live….I remember forgetting that I was in Brooklyn, and when I stepped out of the garden, I was reminded again….That felt great….Once you're there, you just forget that you're not in some deep forest somewhere because there are a lot of tall buildings. So you can't really see outside….All you see around you are flowers, plants, grass, trees, orchids so you forget. Once I was in the gardens, I was in the garden, and there was nothing else like the outside world with the cars and the building and things like that [because] I couldn't see them. So they weren't there….I don't like gray….New York is…gray, red, and black…I remember coming out [of the garden] and…seeing the cars, seeing the buildings, seeing a bunch of people….I'd rather not live in such a crowded area,…and I'm back in the city."

Document analysis found that the 2000 report to the XXXXX Foundation described the experiences of one student who excelled in the program:

"[Male participant's name] – who dreams of becoming a Marine Biologist – …relished the opportunity to participate in the Junior Botanist program. At only twelve years old he had incredible knowledge about the environment and environmental issues, and was constantly asking questions."

Observations of participants found they were really aware of their outdoor environment. Children were engaged in pulling weeds, fertilizing their plants, looking at

insects, and playing in the dirt. They enjoyed harvesting cucumbers from their garden plots and picking and tasting grapes from a nearby grapevine.

Each of the alumni participants remembered observing the wildlife at BBG, including the fish and frogs in the Japanese Garden and the flies in the Children's Garden. Richard recalled learning about the use of algae in the ice cream making process during a field trip to the BBG Japanese Garden pond. Sasha and Deborah recalled playing and swimming in the water during a field trip to a beach nearby. Mary described her terrifying experience seeing a snake while touring the Gardens with her class but loved playing with ladybugs.

These findings are similar to research which found that children who had gardening experiences while at school demonstrated an increased positive attitude towards the environment (Waliczek & Zajicek, 1999; Skelly & Zajicek, 1998).

Theme 5 ***PGR Supported Social Development and Growth***

Social skills development was a significant aspect of learning in PGR. A worksheet was found which described staff skits held on the first day of the summer program on the "3 R's: Respect, Responsibility, and Reliability." These skits were followed by classroom discussion on the meaning of respect, responsibility, and reliability and how it relates to the children in the garden and in their daily lives. Through this classroom discussion, the children not only learned about the "3 R's," but also about public speaking and voicing their opinions in front of others.

Deborah recalled a lesson she learned from her instructors while learning how to tend to plants in her garden plot:

"[The instructors] were showing us…the proper way of putting the plants in the ground. They were showing us each part of the plant, the roots, the stems, the leaves, the petals, and they [were] guiding us,…slowly but surely to make sure…that we just don't rush it in, that we delicately…put it in, that we make sure we water it, we pat it. And…they told you [that you] could even talk to the plants, …to make [them] our friends….To me, that was hilarious because say me talking to a plant like am I crazy?...They said it helped the growth…because you treat…a plant just like…any person…, and they'll grow up to be beautiful….I guess they feel by us doing that it makes the plant feel good, but to me I [felt] strange about it then. But then as I got older, I understand what they [were] talking about, and I've used that when I'm say watering my plants. I feel that by not watering them, by not taking care of them, when they start to whither away and die, that was going to be on my part that I wasn't there carefully taking care of them, talking to them like I should be….I guess [I] would go around, say hello,…introduce [myself], say [my] name, and…pat [or] rub the plant. Say 'Hey, it's a beautiful day, out in the bright sun….You're getting ready to blossom. You'll be with your other friends.' And we just had fun with it, just be yourself."

When asked to describe his favorite activity, Richard said:

"Just weeding. After I found out that the weeds hurt the garden, I guess I took it very personally. That these weeds would be ruining our plants. So I made sure I took care of them, and I dealt with the weeds. As soon as I saw them, I picked them out."

All participants described meeting other children as an important aspect of the program. They appreciated the opportunity to make new friends. Mary recounted meeting the PGR Instructor who interviewed her for the first time. Until that point, Mary had had very little interaction with people outside her family.

> "We had the interviews…in the office, and…I was really, really nervous to tell you the truth. Besides my teachers, [she] was one of the first…white women that I had really interacted with, so I was really nervous, really, really nervous. And I thought she would never accept me because I was black, but I kept on thinking like I know I could really impress her….I remember sitting across from her. I even remember my posture….I remember the feeling…, sheltered, head down, shoulders,…and not looking at her in the eye….She would try to make eye contact with me, and it was really difficult to think.…I'm really a dark skinned girl….I remember shaking hands, and there being an incredible contrast with seeing my hand in her hand. And, at that time,…I remember shaking her hand and …[thinking] her hand is so clean and mine is so dirty because I'm just really, really dark skinned."

Observations found Junior Botanists and Plant Investigators working with partners to tend their garden plots. The older children who had more experience in gardening, such as the Plant Investigators who had returned for a second year in the program, mentored the younger, more inexperienced children, like the Junior Botanists, on evaluating vegetables for ripeness and picking or providing assistance in maintaining their plots, such as weeding.

During an indoor activity where the instructors and children were discussing preparations for an upcoming three-day field trip out of the city, one girl started laughing at a fellow classmate when she was speaking. The instructor stopped the discussion, reprimanded the girl, waited for quiet in the room, and moved into a discussion on how important it is to be quiet and be a good listener when others are speaking. She talked about being respectful of others and treating others the same way they would like to be treated. A simple activity on preparations for a field trip turned into a lesson on respect and listening to others.

An instructor's evaluation sheet reviewing the program described the value of having a small student-teacher ratio as important in working together.

> "The fact that the ratio of students to teachers was 4 to 1 enabled us as teachers to provide effective oversight and provided us with an acute understanding of the personality types which existed in each group. The idea of three distinct groups promoted a closer bond between group members and the staff member working with their particular group. This system of separating the students into groups worked well and produced many positive results, for example, the need for team work and strengthened interpersonal relationships."

This information is similar to other research that was found how learning about plants can be adapted into life lessons about interacting with others, building self-esteem, and respecting others. By seeing firsthand how their actions can have effects on other living things like plants, the children learn valuable life lessons and grow as human beings (Waliczek, Bradley, & Zajicek, 2001; Finch, 1995; Pentz & Straus, 1998).

Theme 6 ***PGR Was a Positive Life Experience***

Participation in PGR provides a positive life experience for participants. Typed notes by a PGR staff member from a Junior Botanist Reunion in 1993, described a mother's account of how PGR had a positive effect on her daughter's life:

> "…Mother said the Junior Botanist Summer Adventures turned around her daughter's life; she now loves science; whereas she had been doing very poorly in science (40's) she now is top in her class, takes care of the principal's plants and helps the teacher with plant information; she loves science."

Observations of the children working in the garden found they picked vegetables they had grown in their own garden plot and proudly showed their vegetables to each other and their instructors. Upon noticing the researcher taking photos of the children working in the garden, one male participant brought a cucumber he had harvested to the researcher and posed for his photograph, smiling and proudly holding up the fruit of his hard work.

This overall positive experience remained with the participants to adulthood. All participants enthusiastically described PGR by using the terms, "fun," "productive," "meaningful," or a "great experience," despite it being hot outside, having to get dirty and sweaty, and doing hard work. They enjoyed harvesting vegetables to take home and share with their families. They recalled proudly showing their garden plots and artwork to their parents at Graduation Day. Deborah remembered the surprise she experienced at getting her certificate and being excited and proud that her mother was there with her to share in her excitement.

Each of the alumni participants indicated they would recommend and, in the case of Sasha, have already recommended PGR to others in their community because of their positive experience. They also indicated they would take their own children to BBG when they have children. Deborah, the parent of a young daughter, said that she would take her daughter to the garden so that she could be exposed to some of the same experiences she herself had experienced as a child. Richard, although not yet a parent, described bringing his nephew, niece, and family members to BBG and showing them the garden area where he used to work.

Mary discussed how she had had a protected upbringing. She spoke about how her participation in PGR was a highlight in her childhood. She described her experience:

> "It was different from any other summer that I had because even up until I moved to college, summer was pretty much spent inside. That was where I would be. I never did anything else but stay inside. So I know that getting up every morning to go somewhere was really exciting.…It was one of the only summers that I didn't spend the day at home watching TV. I remember feeling really colorful, and I remember being really happy. I remember being in the sun a lot, so I guess it just meant to me being really happy being in nature."

In her interview, former PGR staff member Sally described a discussion with the mother of a young boy who had participated in PGR. The mother thanked Sally and her staff for this program, and told Sally, "It was this program that had kept her son off the streets and out of the black jackets and out of the expensive cars that she perceived that drugs would have brought to him."

Sally also described other parents as saying:

> "There were numbers of parents that told us that they could see such a difference in their children, the way they were able to get along with the people after the summer, because they had been taught honesty. They had been taught learning how to get along, learning how to understand people, learning how to use other people's things and not keep them but give them back. They felt they had received many lessons that are very difficult to teach in a regular public school system, and they felt that was very good for their children in learning to get along at home and learning to get along in the workplace."

This finding is similar to other studies which have found that children from urban and at-risk environments respond positively to gardening activities (Rahm, 2002; Tims, 2003; Blandford, 2002; Pentz & Straus, 1998; Finch, 1995).

Theme 7 ***BBG Is Culturally Significant to the Participants' Community***

For participants in this study, BBG became culturally significant in their lives primarily as a result of their involvement with PGR. Observations found that participants in PGR were culturally diverse. Participants' diversity reflected the diversity of the Brooklyn community that was observed by the researcher's daily walks through the surrounding neighborhood to and from BBG. On one side of the garden, there were million-dollar homes with a wealthy population of residents, while on the other side of the garden, there was a lower economic community with more graffiti, window bars, and rundown buildings. The location of BBG within Brooklyn can be seen in Figure 4.3.

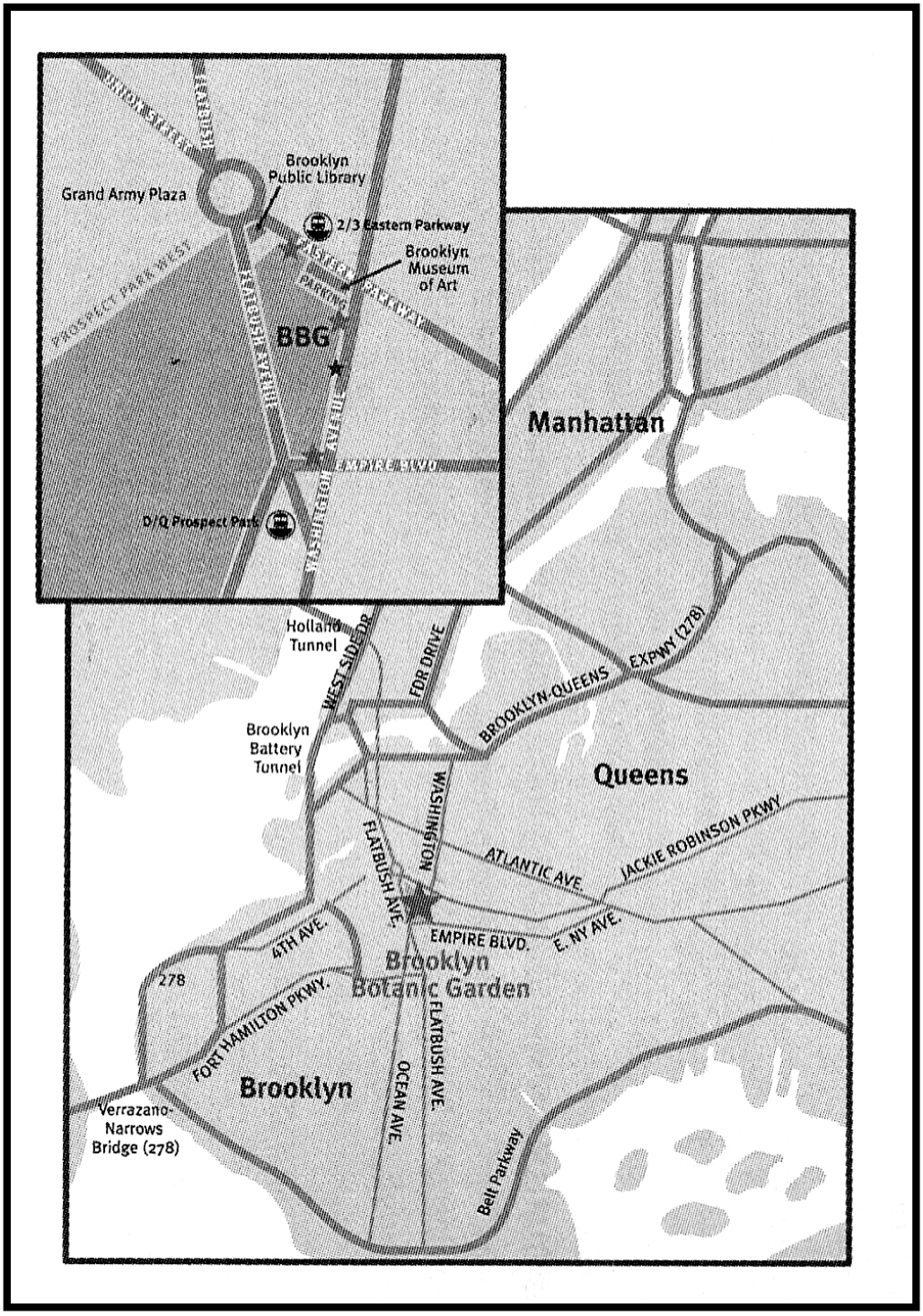

Figure 4.3. Map showing the location of Brooklyn Botanic Garden within the Brooklyn community. (Taken from *Get Green!* 2003 BBG Publication)

These observations were confirmed during the interviews. Sally, the former PGR instructor, thought the location of BBG within the community was a major part of the success of PGR.

> "I think [it's] unique that Brooklyn Botanic Gardens is located at a very strategic point. It's located at the division line between a very affluent neighborhood, Park Slope, and a very lower economic neighborhood so these kids are right there. Like in Chicago, I understand they have tried some programs like this summer gardening thing but they have to take buses and go out and find them because they're from such a distance away. These kids are right there."

Even Richard and Sasha compared the Gardens to other cultural institutions, like the nearby Prospect Park, Brooklyn Public Library, Brooklyn Children's Museum, and Brooklyn Museum of Art, as a part of their community and neighborhood. Sasha also likened BBG to an "amusement park" and said:

> "I…grew up going to the Brooklyn Museum and the Brooklyn Botanic Gardens on a very regular basis. I considered that as part of the neighborhood, and I have seen over the years, it really has grown into some things that everyone can go to. It's for everyone, and people from other neighborhoods and other states can come in and really enjoy that particular area. I really like the neighborhood for that because it's really growing into something that's really good."

Sally also described the selection process for PGR Summer Program participants. When interviewing potential participants in the summer program, the PGR staff tried to select a diverse group of students who represented a variety of cultures, countries, and

races. They held classroom discussion and did various activities that encouraged dialogue about each child's culture, including working on family trees and bringing in food recipes that were traditional dishes of each child's cultural heritage. Documents of these activities on ethnobotany and family trees confirmed this was true.

Sally emphasized this diversity as a primary focus of the program. She even tried to bring in a diverse staff as another way to recognize and celebrate the community's diversity. Previous staff members represented different ethnic backgrounds and geographic regions, including Puerto Rico and Central America.

> "Another thing that was very interesting was the diversity of those who participated in the program, both in the staff and in the children. I was quite often one of the only Caucasians involved, and of course that was very good because of the fact that most of the kids were not Caucasian."

The intent was to bring a typically underserved, more diverse population into the garden and provide the children with a unique and positive experience at BBG.

Sasha also viewed BBG's role in her community as an important one for her own culture in Brooklyn.

> "I was just seven or eight, and I suggest anybody put their kids into [PGR]. But this neighborhood…it's versatile. It's becoming more and more versatile each day,…but some people are still kind of closed minded to certain things,…especially African Americans. Some of them are still closed minded….They feel like 'Well, I'm going to spend money to put my kids in that?'...I would think that it would be a great experience for a child to have

because it would be different. It will open their minds up, but…we are becoming a little bit more versatile."

Several documents were found which outlined the focus on diversity in the PGR Summer Program. In the 2000 Report to the XXXXX Foundation, the document stated that "since the program was founded, it has consistently served a high number of students from families that have recently immigrated to the United States. The 2000 Junior Botanists represented eight different countries, including the Caribbean Islands, China, India, Ireland, Jamaica, Nigeria, Pakistan, and Trinidad."

These findings describe the role that a public garden can play within its community, particularly within an urban community. It shows that it can be a significant cultural institution. BBG certainly plays this role in that it is embedded directly within the community that it serves, providing for ease of access.

Recommendations and Conclusion

This case study of BBG's PGR Summer Program explored the program's impact on alumni and identified significant experiences for participants. Following this exploratory study, additional research to further explore Project Green Reach and its meaning for participants is needed, and a need was identified for BBG to maintain alumni records for supporting further research. The researcher identified several areas for further research and investigation. A continuation of study on the Project Green Reach summer program would provide more in-depth analysis of the long-term effects of alumni participants and the meaning of PGR in their lives. A focus group of past participants, perhaps even the interview participants in this study, would have the possibility of assisting participants in drawing from their memory about their experiences and

reflections of the program. Conducting the focus group at the BBG site, near the children's garden, and providing hands-on materials for participants to look at and review could aid participants in recollection of experiences.

A longitudinal study that follows current participants through adulthood could provide tremendous insight into the effects of the program over the course of their adult lives. This may provide insight into how a child and a young adult in his or her twenties reflect on the program in comparison to how they view the program as an older adult. The participants in this study participated in PGR in the early stages of the program. Since the program has evolved into providing mentorship opportunities for older children and opportunities for the children to return for consecutive years, it would be interesting to follow-up with children from more recent years.

Because this study's alumni participants were in their early twenties, it would be interesting to follow up with these or different individuals as older adults. The reasoning here is that older adults may be more settled and reflective on past experiences and how childhood experiences may have had some influence on their adult lives.

There are also opportunities to study and document the school-year program of PGR. PGR is a unique program offered to a traditionally underserved population. Documenting the program as a model program for other public gardens and schools could help demonstrate the use of this type of program in their communities.

The literature shows that many schoolteachers feel inadequately skilled to teach environmental concepts to their students yet the initial opportunities for children to be introduced to and formulate their own opinions on environmental issues occur at school (DeMarco, et al., 1999). Interviewing teachers whose classes participate in the school-

year program of PGR about what they learn, their views of BBG, and if and how they incorporate the techniques into their curriculum and daily teaching may add insight into what this population gains from a program such as PGR.

This study shows that Project Green Reach is a worthwhile program. Through hands-on gardening and science activities, PGR serves as a positive experience for youth who come from challenging home and school environments, helping them to further develop their science, gardening, interdisciplinary, and social skills. Findings also indicate that PGR is reaching its goals to work with Brooklyn's Title I school teachers and children to educate students about science concepts through plant-based education and foster a relationship between this traditionally underserved population and the Brooklyn Botanic Garden. The cultural significance of BBG to the participants' Brooklyn community and how this program celebrates the cultural diversity of its participants are important factors to the success of PGR.

This study was one of the first of its kind to contribute to our understanding of the role of plant-based youth education at a public garden through the example of Project Green Reach at Brooklyn Botanic Garden. The seven themes identified in this study illustrate the meaning and impacts that a hands-on gardening program such as PGR at BBG can have on inner city youth.

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Appendices

APPENDIX A

TELEPHONE SCRIPT FOR INITIAL CONTACT WITH POTENTIAL INTERVIEW CANDIDATES

Interviewer: Good evening/Hello. My name is Susan Conlon. I am working with the Brooklyn Botanic Garden in New York City. I am trying to reach (full name). Do you know how I may reach (name)?

Wait for response.

If no

I: I'm sorry to have bothered you. Thank you for your time. Goodbye.

IF YES, GO TO Q4

If yes but does not currently live there…

I: I am a graduate student at the University of Tennessee working on a research project with Brooklyn Botanic Garden. According to our records, (full name) participated in the Children's Gardening Program at one time. Do you know how I could get in touch with (first name)?

IF THEY WANT TO KNOW MORE:

I: I understand that (first name) participated in the Junior Botanist/Plant Investigator Summer Program (through Project Green Reach) at Brooklyn Botanic Garden. I am doing a study with the University of Tennessee and the Garden. This study is important in understanding the experiences of former participants, like (first name), in the Junior Botanist/Plant Investigator program at the Brooklyn Botanic Garden.

Q1

If yes

I: How is the best way to get in touch with him/her? Do you have their telephone number and mailing address?

Do they have an email address?

(Get all if possible—or request phone number)

Thank you for your time. I appreciate your help in finding first name. Thank you. Goodbye.

Q2

If no

I: Is there someone else who might know how to get in touch with (first name)? Thank you for your time. Goodbye.

Q3

If yes to Q2…

I: What is their name and telephone number or address?

If no to Q2

I: I'm sorry to have bothered you. Thank you for your time. Goodbye.

Q4

If yes and does live there…

I: May I speak with her/him?

If no

I: When would be the best time to reach him/her?….
Thanks, I will try to reach him/her at that time.
Thank you for your time. Goodbye.

If yes…Now speaking with potential interview candidate

I: Hello? My name is Susan Conlon. I am a graduate student at the University of Tennessee. I am contacting past participants of the Junior Botanist/Plant Investigator Program (or Project Green Reach) at Brooklyn Botanic Program for a research study I am doing with Brooklyn Botanic Garden and the University of Tennessee. I will be talking with former participants of that program to learn more about their experiences while participating in Project Green Reach. I received your name and phone number from Brooklyn Botanic Garden. Do you have some time to talk about this research project to see if you are interested in participating?

Q5

If no and is not willing to participate or was not affiliated with BBG's program

I: I'm sorry to have bothered you. Thank you for your time. Goodbye.

If no but is willing to participate or talk further but doesn't currently have time to talk

I: When would be the best time to reach you again?….I will try calling you back at that time. Thank you for your time, and I look forward to speaking with you soon. Goodbye.

If yes

I: As I mentioned before, I am a graduate student at the University of Tennessee and am working on my Master's degree in Horticulture. For my Master's thesis project, I am working with Brooklyn Botanic Garden to conduct research about the Junior Botanist/Plant Investigator Program in Project Green Reach. I am interviewing past participants of the program to learn more about their experiences of the program. The information gathered from these interviews will be used to help BBG understand how the children who have passed through the program have

experienced it. This information will also help BBG to enhance its current summer program for children who continue to go through the program. May I ask you a few questions to see if you qualify to participate in the interviews?

Q6 (Checking Qualifications for Study)

If no

I: OK. I'm sorry to have bothered you. Thank you for your time. Goodbye.

If yes

I: I would like to ask you a few questions first to see if you qualify for the study. Are you over the age of 18?

Q7

If no

I: I appreciate your time in talking to me this afternoon/evening. According to the guidelines for this research study, I am not allowed to interview people who are under 18 over the phone. I hope you have a great day. Thank you for your time. Goodbye.

If yes

I: Did you participate in the Junior Botanist/Plant Investigator Summer Program at BBG?

Q8

If no

I: I appreciate your time in talking to me this afternoon/evening. According to the guidelines for this research study, I am only interviewing past participants of the Junior Botanist/Plant Investigator Summer Program. I hope you have a great day. Thank you for your time. Goodbye.

If yes

I: Do you remember how old you were when you participated? *Possible prompt: In what year did you participate? Were you in the fourth through eighth grade when you participated?*

Q9

If no

I: I appreciate your time in talking to me this afternoon/evening. According to the guidelines for this research study, I am only interviewing past participants who went through the program as a fourth through eighth grader. I hope you have a great day. Thank you for your time. Goodbye.

Q10

If yes

I: Did you participate as a Junior Botanist or Plant Investigator?

Wait for response. Record answer.

Q11

I: In what year do you remember that you participated as a Junior Botanist or Plant Investigator?

Wait for response. Record answer.

Q12

If they do not qualify to participate in the study

I: I appreciate your time in talking to me this afternoon/evening. Unfortunately, you do not qualify to participate in this study. I am looking to speak specifically with people who meet these specific qualifications. Do you have any questions? I hope you have a great day. Thank you for your time. Goodbye.

If they do qualify to participate in the study

I: Your participation in this study will provide you with the opportunity to reflect on your own childhood experiences at Brooklyn Botanic Garden as well as provide researchers and Garden professionals with more knowledge on youth gardening programs. If you choose to participate in this project, there will be a one-hour audiotaped interview session conducted over the phone, and, while unlikely, I may need to follow up with you with a few brief questions following the initial

interview. In previous interviews, participants have talked up to an hour and sometimes even more. Your interview may be more or less than an hour, however you choose. Your participation is entirely voluntary. You may choose to withdraw from this study at any time. Do you have any questions or comments? Would you like to participate?

Wait for response. Answer questions as they arise.

Q13

If no

I: OK. Is there a particular reason why you would prefer not to participate?…*Wait for response. Make comments as necessary*…I appreciate your time in talking to me this afternoon/evening. I hope you have a great day. Thank you for your time. Goodbye.

If yes

I: The University of Tennessee requires that I have a signed written informed consent form from you before I interview you. (In this consent form, you will have the opportunity to read more about the process of interviewing.) I would like to send this consent form to you for you to sign. May I have your mailing address?

Wait for response. Record answer.

I: Once I receive the consent form from you, we will be ready for the interview. May we go ahead and schedule a date and time for me to call you for the interview that is most convenient for you?

Negotiate time and date.

I: First name, it has been a pleasure talking with you already. I greatly appreciate your time and help with this study. I will be sending you the consent form right away. Please read, sign, and return it to me as soon as possible. There will be an enclosed self-addressed, stamped envelope for you to return it in. I look forward to speaking with on date and time. If you have any further questions about this study or need to reschedule our interview, you can reach me at (XXX) XXX-XXXX or through email at XXXXX@utk.edu. I am looking forward to speaking with you soon. Thank you! Goodbye.

APPENDIX B

LETTER ACCOMPANYING INFORMED CONSENT FORM

February 4, 2005

Alumni Participant
123 45th St.
Brooklyn, NY 11111

Dear Alumni,

It was a pleasure speaking with you over the phone. I am writing to request your participation in a research study of the Brooklyn Botanic Garden's Project Green Reach program. As a joint effort by Brooklyn Botanic Garden and the University of Tennessee, this study is part of an effort to learn about the experiences and long-term impacts after participating in Project Green Reach.

After speaking with you, I understand that you are an alumnus of Project Green Reach. I am conducting informal phone interviews with a random sample of alumni participants from this program to ask about your experiences while participating in this program and how, if at all, your participation in the program has impacted your adult life. If you choose to participate, your interview responses will be kept completely confidential and will be released only as summaries in which no individual's answers can be identified. This interview is completely voluntary.

Before I am able to interview you, the University of Tennessee requires that I have a signed informed consent form from you. In this consent form, you will have the opportunity to read more about the process of interviewing. I have enclosed two copies of the form for you to sign. One copy is for your records; the other form will need to be returned to me. Please read through the informed consent form, sign and date it, and mail to me. I have also enclosed a self-addressed, stamped envelope for your convenience.

Results from your interview will be used to help Brooklyn Botanic Garden and other public gardens in the continuation of children's gardening programs. By discovering the impact of participation in programs like Project Green Reach, valuable research information will benefit Brooklyn Botanic Garden's youth gardening programs as well as similar programs located across the country.

If you have any questions or comments about this study, I would be happy to speak with you. Please contact me by phone at XXX-XXX-XXXX, or email at XXXXX@utk.edu.

Thank you very much for helping with this important study.

Sincerely,
Susan Conlon
Graduate Research Assistant

APPENDIX C

INFORMED CONSENT FORM

You have been invited to participate in a research study with the University of Tennessee and Brooklyn Botanic Garden. The purpose of this research study is to obtain qualitative information about the experiences of past participants of the Project Green Reach Summer Program at Brooklyn Botanic Garden.

You will participate in an informal, semi-structured interview that will last approximately one hour. The interview will be audiotaped for research purposes only. Your responses in the interview will be kept completely confidential, and you will be given a pseudonym, or alternate name, to ensure your anonymity in the presentation of the study results. Once the audiotapes of these interviews have been transcribed, they will be destroyed. Transcription records will securely stored by the researcher. These records will be made available only to the researcher and the faculty advisor conducting the study unless you specifically give us permission in writing to do otherwise.

There are no foreseeable risks involved in your participation in the study nor are there any direct benefits regarding your participation to you. Your participation in this study will provide you with the opportunity to reflect on your own experiences in your childhood as well as provide researchers and Garden professionals with more knowledge on youth gardening programs.

Your participation in this project is entirely voluntary. If you decide to participate, you may refuse to answer specific questions or choose to entirely withdraw from the interview without penalty. You may also decline to participate in the study without penalty and without loss of benefits to which you are otherwise entitled. If you choose to withdraw from the study before data collection is completed, your data will be returned or destroyed.

If you have any questions about this research study and procedures, please contact the researcher, Susan Conlon, at the Department of Plant Sciences, University of Tennessee, 2431 Joe Johnson Drive, Knoxville, TN 37996, through telephone at (865) 974-7324, or via email at XXXXX@utk.edu. If you have questions about your rights as a participant, contact Research Compliance Services of the Office of Research at the University of Tennessee at (865) 974-3466.

I have read the above information. I have received a copy of this form and agree to participate in this study.

Participant's Signature_____Date_____

Interviewer's Signature_____Date_____

APPENDIX D

INTERVIEW GUIDE FOR FORMER PGR SUMMER PROGRAM PARTICIPANTS

Demographics:
Age
Gender
Family Background – Ethnicity, Race, Nationality
Educational background
Profession/Occupation

Interview Questions:
Tell me about the community you grew up in.

Tell me about your gardening experiences, if any, as a child prior to participating in the program and then after participation.
Possible Prompts: Did you garden at home? In school? In a community garden?
Did your family have a garden at home?
Who did you garden with?

Describe your experiences at the BBG's Project Green Reach Junior Botanist Program as a child.
Possible Prompts: What did you like? Dislike?
What stands out in your memory? What do you remember the most?
What were your favorite activities? Least favorite activities?
How old were you? What grade were you in when you participated?
How did you find out about the program?
Describe how you felt when you found out you were selected to participate.
Did you eat the vegetables you harvested from the garden? Did you share with your family?

Describe your gardening experiences while participating in the program.
Possible Prompts: What did you take interest in?

Tell me about the staff in the program.
Possible Prompts: Did you keep in touch with him/her afterwards?

Describe your memories of other Junior Botanists/Plant Investigators who participated with you.
Possible Prompts: Whom did you make friends with?
How old were they?
How did you view the other participants?

What did the Summer Program mean to you as a child?

What do you think is the likelihood of your participating in the Summer Program without the special funding and transportation?

What meaning, if any, does the Summer Program hold for you as an adult?

Tell me about how this experience has influenced your life.
Possible Prompts: Do you visit BBG?
Do you have children? Do you bring them to BBG?
Do you spend much time outdoors?
Do you garden now?

APPENDIX E

INTERVIEW GUIDE FOR FORMER PGR SUMMER PROGRAM STAFF

Tell me about your educational and gardening background.

How long were you with the program?

Tell me about how the program was started.

In your own words, describe what you found to be the most important features for the success of the program.

Did the goals of the program change from inception until you left?

Did your procedures for selecting children to participate in the program change over the course of your involvement? How? What selection criteria were most helpful or important?

Tell me what you think has led this program to achieve success over such a long period.

Describe what is unique about this program.

Describe how you think participation in this program affects or changes the children who participate.

What would you do new or differently if you had to do it over again?

Have you kept in touch with any of the past participants? If so, please describe your relationship. Have you received any feedback from past participants about the program which you are able to recall and share?

APPENDIX F

SAMPLE INTERVIEW TRANSCRIPT

S = Interviewer P = Participant (XXXXX) = Not clear

XXXX = Names have been changed to protect confidentiality.

S – Well, okay why don't you tell me a little bit about the community that you grew up in?

P – Hum, well the community I grew up in uh is East Brooklyn and uh at that time hum lot of, you know, not to much of violence but you know just not as safe as it was for me now. Hum the growing up around with the other children and everybody, it wasn't too bad. Hum in school a lot of fights, a lot of you know gun fire and everything so it wasn't as safe back then as it was now but now the schools could be more hum development community. We have uh more people being involved and you know more houses being built, more families, hum come into the neighborhood, being involved in the children's lives. I mean it is, to me it is a little bit different but to me it is still the same. It's still not as safe because there are a lot of people that have doubts coming to East Brooklyn you know that's the worst area to be in but I feel you know it's not basically the worst. There's other areas in Brooklyn to me that's more equal to it but it's just the people in the community that uh makes the community the way it is. It's not how it turned out. It's the people in it and to me it's just that you have to be aware of people who you should associate with and who you should not associate with and then you won't get too much chaos with just your family.

S – Okay, well uh what did you say your area was called?

P – East New York,

S – East New York?

P – Yes.

S – Okay and is that close to the Brooklyn Botanic Gardens?

P – No, no. Actually when I had went there to uh in the program, they had a bus come and pick us up.

S – Hum.

P – So it was a little distance, had a little ride because they had to pick other participants up along the way

S – Unhuh.

P – so they had a bus to come and pick us up to bring us over to the Botanical Gardens.

S – Uh okay and uh how long was your bus trip?

P – Hum, it wasn't too long. It wasn't too long. I mean I got to, you know, see other participants, you know, not the … well, as I got to know them when we got there because it was totally different in the bus. It's just that some was a little rowdy, some was cool and some you know just a little quiet and smart but eventually you know we know who was who by their character.

S – Okay, unhuh. Well, tell me a little bit about your gardening experiences if any before participating in the program.

P – Uh, the only thing is that I know my uncle he had a garden here at the time and just by seeing him do his gardening skills and everything, it was interesting because I didn't know really too much about it and uh it was uh one part that I remember that we did as junior botanists with XXXXX and the others there and uh we had to plant plants in the

children's garden and I remember we had to dress in old clothes and uh we had to get gloves so we wouldn't have to get dirt on our hands and it was so hot that day, burning hot and we had flies and mosquitoes all over the place and

S – Hum.

P – the thing with that experience was we had to get a new understanding of what we was doing and to me it was great, you know, it was new but it was great. I guess the part that was neat was getting into dirt you know as a kid you know that's always like you were able to play but the point is that we bring a life to something and put like back into the ground. That was the most to me unbelievable experience I had and just to work with and get the people it was just amazing and I surely honor them for going out there with us, to have a children's garden because it turned out to be just amazing experience and very beautiful turnout when it happened.

S – So tell me a little bit more about uh getting your hands dirty. What was it like for you?

P – Ah, well, they gave us some tools and they guided us along the way as to how to dig the dirt out. Hum they was showing us you know the proper way of putting the plants in the ground. They were showing us each part of the plant, the roots, the stems, the leaves, the petals and uh they was guiding us you know slowly but surely uh to make sure that we delicately you know to make sure that we put … that we just don't rush it in, that we delicately you know put it in, that we make sure we water it, we pat it and sometime they told us you could even talk to the plants you know to make it our friends and to me that was hilarious because say me talking to a plant like am I crazy?

(BOTH CHUCKLE)

P – I'm a child so I'm thinking but uh actually they said it helped the growth also because you treat … just any person a plant just like you know any person you treat them and they'll grow up to be beautiful and we don't know that but to the plant it makes them, I guess they feel by us doing that it makes the plant feel good but

S – (CHUCKLES)

P – uh to me I feel strange about it but then as I got older I understand what they was talking about and I've used that when I'm say watering my plants. I feel that by not watering them, by not taking care of them, when they start to whither away and die, that was going to be on my part that I wasn't there carefully taking care of them, talking to them like I should be.

S – So tell me a little bit about how you would talk to your plants.

(BOTH CHUCKLE)

P – I guess uh you know. I guess they would go around, say hello, you know I guess introduce, say your name and I guess kind of like you know uh like pat, not pat but you know rub the plant, say hey it's a beautiful day, out in this bright sun you know, you're getting ready to blossom, you'll be with your other friends and we just had fun with it, just be yourself.

(BOTH CHUCKLE)

S – Okay. Well uh going back to what you were saying your uncle had a garden, did you help him work in the garden?

P – We just mostly played. We didn't mostly work in the garden, we played because he wanted to do the work so we actually played around in the garden but a lot of times he would show us like uh how the corn is growing, tomatoes he had, little fruits, he would

show us like the different kinds of seeds that you would need and how to plant them and to me that was interesting like WHOA I said uh this came out of this little seed like WHOA then to have it blossom and just have it to your mouth and eat it, it was like unbelievable.

S – Well so did you uh you mentioned that you ate some of the vegetables that your uncle grew. Did your whole family share in that?

P – Oh yes, we shared. We definitely ate. He brought like tomatoes or uh cabbage or corn or cucumbers, he would definitely have uh anything that he had he always sent it to us or bring to us and basically we just make a nice meal out of that. Sometimes we won't even have to go to the store because uh there's our little fruit and vegetable stand in the back yard.

S – Did your uncle live near you?

P – Yes, yes. We actually all lived together.

S – Okay.

P – Yeah, cause he was the owner of the building so we all lived together in the building.

S – Okay, well did you have any other gardening experiences before the program like at school or community gardening?

P – Uhum, not really, I mean, we had the little program where in the classroom and we had been like took a egg carton shell and uh we had put soil in it and poked holes in it and we had planted little beans that we planted inside and we did like a little experiment to see uh how long that these beans would grow and have little bean sprouts to grow out of them so we did little projects in school, something like that.

S – Okay, well uh tell me a little bit more about your school and what that was like.

P – Uh, well uh my school, I went to XXX Elementary School, it wasn't too bad there from the experiences. Uh my mother, she was always supportive there. She was PTA president from the time I was there so a lot of times that uh anything that was going on she was there and uh I had some really great teachers that really helped me out. Uh they influenced me so well and I'm very glad where I'm at now from the time I graduated from there and went to junior high school, was just right around the corner from me and once again, you know, just the influence you experience what the teachers is a major part of my growing experience because a lot of times I could have been like most students I know out on the streets, not going to school, cutting classes but for me to disappoint my mother like that and try to cut school to do God knows what, I mean, she wouldn't like that at all but I'm glad I had the smarts to realize you know that's not going to be my real world when I come out. My real world is going to be in that classroom for me to gain some kind of knowledge and I was so thankful that I was wanting to know and I had friends who I could look to give me uh to tell me, you know, don't do that, don't hang around these people, you know, they're not going to care and I grew out of that and so you know graduated from there as well and I wasn't too be a student, smart student, honor roll, awards galore I had and uh high school, that was a bigger challenge when I started high school. First semester to me was the best semester. I mean I did extremely well, high grade point average, once again honor rolls and everything that it's like 10th grade and 11th, that, those semesters I kind of went, dropped because I had a lot of activities at the school and work so a lot of that just kind of went down for me because I wasn't focusing on what I had to do and that kind of laid me back on my studies and everything that I was supposed to do in school and uh held me back a little bit but it kind

of opened up my eyes you know to realize that I was getting ready to graduate and I said you know I have to cut back on some things and I have to get ready to graduate and when it came time for me to really focus uh I mean it wasn't too late but then my mind said you know uh I should have really made that focus when I was in 10th and 11th grade and then I shouldn't have to struggle when I got to the 12th grade but I thank God that I was able to make it out of there on time and graduate on time for me to get to my college. Of course I didn't have a break like most people. I didn't have a break. I went on to college from there and uh I studied uh I went to XXXXXX uh and I did 4 semesters, I did 2 years for my associates and I just finished two years for my bachelors so I'm now at the point where I'm deciding which school to go to for law school and preparing to take my (XXXXX) in upcoming October or December.

S – Well, good luck with that.

P – Thank you.

S – And you like uh where would you like to go to school?

P – Well uh I'm still deciding cause I had a good point of someone in my professors and he told us that no matter you fill out for every school you can, no matter if it's an ivy league school or not, just fill out because you never know if you can get in. Just go ahead and fill out the application. Don't be afraid.

S – Hum. Okay. Well uh why don't you describe your experiences of the junior botanists program as a child. What stands out in your memory?

P – Hum, the real standout is when uh we put uh, I think it was XXXXX and one of the new interns, XXX and XXX, we had uh … they took us on a trip and we had went swimming and the thing was at the time I didn't have a bathing suit so luckily one of the

participants I think XXXX she had a bathing suit for me and uh I was uh I felt so bad because I had asked my mother ahead of time, mama I need a bathing suit but you know luckily there was somebody there that uh understood that I didn't have one and gave me one and uh we just had a BALL, I mean, just the idea of being away from there and really seeing the outside of everybody, I mean, we had such a good time. We all went into the water you know, we splashed, you know we played games, we ate, I mean, we just (XXXXX) the whole experience and they was also teaching us as well in the water like uh what animals in the water, what kind of water. There was like salt water so they would tell us you know the kind of water and the little fish that was in the water and we would go and collect seashells. I mean it was just an amazing experience for us and uh I don't think I will ever forget that time.

(BOTH CHUCKLE)

S – Well, uh where did you go? Where, what was this field trip?

P – Uhum you know what? I don't remember where we went, what beach we went to but uh I can't remember where. That's the only thing, it's been so long, but I know it was hot, of course. It was so, so hot and uh it's just an experience. The neat thing about this experience is all of us you know having fun, you know, a long journey, you know, scared to know what's in the botanical gardens, I guess it was like nice little bon voyage you know until we see each other again and that was basically what it was, you know, and so then you know we just all had fun, enjoyed each other's company and don't worry about anything.

S – Well, was this an overnight trip?

P – No, no, just a one day trip, you know. We just went there uh for a nice, uh I think for a couple hours and we just enjoyed ourselves there.

S – Hum, okay. Well, uh what else do you remember doing while participating in the program?

P – Well, uh I do remember you know there was uh once we got through the program I remember we did do some little activities while we was there. I believe we did like little journals cause they would usually have us split in groups and uh group 1 would go with XXXX, group 2 go with XXXXX, and group 3 would go with XXXX and each group will go to certain destinations and from there we would all uh they would teach us about different kinds of plants and trees and uh we'd see whatever kinds of animals that's around and uh then we'd have a little sometimes after when we get back from our journey, we'll have our little journal writing to where we'd write in our journal what we seen, uh describe it and sometimes we had a little class discussion of you know how we spent our day, uh what you learned. It was kind of a nice classroom experience because each group did different things but then once we brought everybody back and we all talked about our experiences, it was like WHOA, this group did this one, I wish I was in that group, I was I was in that group because each group was a little different but the experience uh it was great. It was great! I can't describe it no better than that. I mean uh I don't know it all the participants uh had fun but we did have some little class clowns who didn't give respect to them but uh hopefully, I mean, they got something out of it as well as I did.

S – Okay, well, well uh did you work in the gardens?

P – Uhum, only time we worked in the garden was that time where we had planted the plants at the time. We didn't spend too much time in the garden uh at the time. The only time I think they had a little ceremony I believe at the time uhum when we was doing that or actually when the participants came back. We was out and uh came back to the Garden where they toured us around the entire area and we had the parents there and showed the parents basically what the kids did and described the efforts and hard work they put in making the children's garden to be a beautiful garden, beautiful outlook for the parents and they was just basically showing them things that we did, things we had learned, things that they had taught us and that was the only other time when we went back to the children's garden.

S – Okay, well what was that like doing that ceremony when your parents were there?

P – Oh man! That was uh I cried.

S – Oh really?

P – I actually cried because it was the point that when I came back … I didn't get the chance to see XXXX cause I don't think when I came back XXXX was there but I remember XXXX and I was like whoa XXXX is still here and I said whoa just after months and months later I said she's still here working hard and I got to see the other participants so we could talk and mingle. We was able to discuss you know what they was doing now and the plan uh with my parents being there and just uh have them to see what I've done, I mean to me that was the I guess, I was probably speechless because she didn't think you know by me coming down it was going to be just something educational but it turned out to be better than I thought

S – Unhum.

P – and they had just a wonderful time. I was so happy just for her to see things that we did and to learn and to get to see the wonderful people there and actually when we was there we was able, I was able to do uh a little project there. We did uh uh a little plant. They gave us a little pot and uh it wasn't slow. It was like uh well we could stick the plants in them and we could make like a centerpiece. We made a nice centerpiece cause at the time we was there it was like the Christmas theme and we made a nice little centerpiece. My mother helped me and everything and they had the scented candles and the fresh flowers and it was just beautiful and I was able to take that home with me and that day I had put it right on my table and you can still smell the freshness of those plants. It was this unbelievable uh you could come into the house and say what is that smells good? And it was the plant. It could be weeks later and the plant still smells beautiful.

S – Hum, and so that was part of like a reunion that you had?

P – Yes, yes, yes. It was like a reunion, you know came back afterwards and actually the ceremony, I remember the ceremony that we did, actually uh at the end of the ceremony my parents before we did that, parents came there and we got certificates for being participants and uh that was emotional. My mother and I was there and they called us up on the stage, they gave us our papers and I say Mommy, mommy, look, look, that's my name on here, mommy. So I mean that was mostly because we didn't know that they even planned a ceremony you know like that but when we got there I was like WHOA! I said we get a certificate and we get to invite our parents and we get to you know get dressed up for the occasion. I was like this is great! I can't see not no other person being a part of this program but I was so thankful that my teacher had, uh was the one that initiated me to be in the program. I didn't even know she put my name in something like

this. When she told me I was like whoa what is this thing, this junior botanists? What's this special thing? What's this and when I found out she had put my name into this, I was like WHOA. I said out of all your students I was the only one picked for this program.

S – Hum.

P – I said that's special. That was very special for one of my teachers and I will never her for even doing that. I mean there was time I made noises and she was going to take me out if I didn't behave but then after a while I said let me behave cause I wanted to go to this program and uh I was thankful she was put my name in cause I didn't think they even had something like this when she told me and she had told my mother and I was like WHOA, WHAT, I got WHAT? I said what is this? I'm like thank you. You don't know how much this means to me and you don't know how much this changed me because I would never think that me being getting involved uh it wasn't me but you always try things different, you always get to know things different, being around other environments, never stay in one environment. You always be able to learn new things and you can pass that along to your children or other people in your family and from your interests maybe they'll be interested too.

S – Well, and tell me about that. Did you uh share what you learned with other people?

P – Well, I got, you know, I was able to uh show my parents mostly because uh when I got back this was like a summer thing so I didn't get a chance to really share my experience you know with my class mates but uh I did get a chance to speak to my teacher and let her know, I told her thank you because it was just a great experience for me for her to do something this nice but I definitely did thank her. I was able to tell her the different things that we did on the program and uh with my parents you know that

was just you know me letting them know that my interests were at the program, things, activities, and little projects you know that we did that we was able to do with the other children, XXXXX, and everybody and uh to me instead of you know being elsewhere that was a great summer experience because most of the time I'd just be home not doing anything, not going anywhere but for that summer just to be able to get out and just to explore different environments and just the people around you, enjoy new spaces, just the idea, just using that experience later on in life, that will be uh just made it worthwhile and I think it may have helped other participants also for their growth because at the time, it was a little shaky, but the time we were there, I think it helped them grow and helped them to be really serious because you never know if this may be something you want to do when you get older. You may want to study or you may want to be interested in it so I think it gave us a little idea so what uh we could be looking for in the future.

S – Well, tell me a little bit more about that, uh you thought it helped other participants to grow. Is there any other participants that you particularly remember that uh

P – Yes, yes. Well actually right now I'm holding a picture that uhum that we took and uh actually it says on the back it says Participants and Instructors from the Junior Botanists Summer Program at the Garden, 1990. Says from left to right in the back row [lists several names]. Amongst these I believe the most influential, they was kind of clowns to me, but [lists several names]. They actually something about them because they would always find a way of joking about things like if XXXX, XXXX, or XXXX uh tried to get them to do something, they'll find a way to joke about it and ways uh they would be like the class clowns. They wouldn't take things seriously and to me I would say to them like what is … uh they'd say gotta have class clowns, always got to be a class

of clowns but I think that by talking to them and by them understanding what kind of program this is that maybe they got a more understanding by going on their little you know assignment trips with uh the instructors, I think their growth potential, they grew and they may have got a more understanding as how important it is for them to listen to the teachers and not to be bothersome by people who don't want to be here. You know the point of the instructors for us, for them was to teach us and to help us grow and to help us understand why we was here, what we were going to get involved in and that was what they was trying to teach us and for them to go out of their way and try to harm that, to me that was hurtful and I can see sometimes they make faces that you know they didn't want to get frustrated a lot but sometimes you know they had to let them know you know if you don't want to be here, don't come.

S – Hum.

P – And they stayed. They stayed, they came back and after a while they wasn't too much of annoyance to them. They grew out of that and I was happy that they grew out of that because to me it wasn't well and you don't do that to people, intelligent people, gifted people, lovely people that's going out of their way to help the children and you give them respect as well as we give them respect and that was what I remember about them but I'm glad that uh they would grow out of that before the program ended.

S – Hum. Well, that interesting. Were there any other uh people that you made friends with?

P – Oh yes! I made, yeah, yeah!

(BOTH CHUCKLE)

P – I definitely made friends with uh mostly with the girls, mostly with the girls. I mean

some of the guys, I mean they was playful with the girls. I mean just ordinary children, we played, but mostly with the girls that uh we played with. We knew who would tag up with who, who would want them to be in their group and sometimes I was kind of like a (XXXXX) helper, like come in this group, come in this group, come in this group, and I was like no problem, I'll go with that group. I said hey I want to be accepted too. You know you want to be with the popular crowd but I was glad I was able to be you know popular. Most of the time you know all of us girls we stuck together you know and all the guys stuck together so I said well come on you all, we'll stick in one place and let the guys do their own thing and I was great. I mean girl power and let the men do their own thing

(BOTH CHUCKLE)

S – Well, did you ever do any activities with the students in particularly?

P – Uh, I don't think so. Most of the time if we did any activities, it would be when we came back to the botanical gardens that we uh did any projects. Actually we did. Actually we went to uh I think it was the uh I forgot what that was. I think it was the Green Room. I know they had an area with nothing but glass around it and they would take us in there and they would us basically uh what type of plant and everything and describe it to us and then sometimes they would ask us before we leave like okay do you remember what this was? Do you remember what this was or like a little game and I think the person who remembered, I think they gave us a little prize that I remember so it was fun because we were trying to get the prizes. We were trying to remember like okay what was this, what was this? Do you all remember? Do you all remember? So we were trying to help each other out and then you know like in a class some teachers okay if this

student gets this he will get a prize and actually I thought that was fun because we get something free. I said okay I try to remember as much as I can but I can't remember everything and you know everybody would feel kind of bad because uh I knew that. We felt kind of bad because a person would get the stuff and like uh we didn't get nothing. One day we didn't get anything and we felt bad because we couldn't remember nothing so it's like we had a be very attentive when they talked, you know beware. I said could we write something down uh so we could remember. I know we couldn't write anything because they wanted us to use our heads and really remember a lot of things because we didn't write nothing down. We just had to try to remember along the line because there was so many things there and for us to remember, I was like my head hurts.

(BOTH CHUCKLE)

P – I want to tell you though, I can't remember too much, please, I mean, I can remember how they look and they can say okay by looking at it, the way how it is shaped, the way how uh it was rough, or it was soft, and they had like little old sharp edges then you can get an idea of like what kind of plant it is but it would look similar. I couldn't remember because this one was like this one but they'd find some kind of distinctive way that showed us it was not and you know when they showed us it was like oh okay but I remember that activity when they give us little prizes and uh that was when mostly we would try our hardest to remember a lot of things that we had learned and the names and it was fun,

S – Hum.

P – It was like being right in a classroom and they was the teachers and they would basically want us to teach them what we had learned so it was kind of in reversal.

S – Okay, well uh what uh do you uh can you describe to me what the other students looked like, what you remember them?

P – (CHUCKLES) I'm looking at the picture now. I'm laughing at these pictures. Oh man! Hum, just to me, just a regular, I might think goofy but uh just regular each and every kid because to me I can look at this and say what was I thinking about wearing it. I mean just regular, hum, they had some really adorable, adorable people here. Some of them facial expressions how they got in these picture, you would look and laugh. They would give some weird expressions like huh and I'm like you know, hello, they're taking a picture. You want to be these funny clowns so they got those little funny expressions in here. Hum I have one here XXXXX. She was a doll. She was a real doll and uh to me by looking at her, I'd say we got a little small one here like how can she be intelligent here but uhum she turned out to be a real doll. I love XXXX. She was good. Then we have some of the others here like uh XXXX. She was somewhat, there were some loud ones here.

S – Unhum.

P – She was kind of a nice one. She was cool. XXXX she was nice. She was part of the loud crowd. XXXX, XXXX was good also. XXXX, she was kind of like my little buddy on the bus. Sometimes she would sit with me on the bus and uh we would just talk and talk and talk sometimes on the bus when we was going there. And uh let me see, XXXX, uh I think that's it. Most of the guys, they was okay. Hum I was surprised they had little short uh some of them are shorter than me in the picture. They had some tall participants in the picture and uh like I said I'm surprised I was even able to find this picture because this is the uh crazy. I was like I know I got a picture here somewhere and I could just

look and see uh like you could see XXXX, you see XXXX with her smile, and you could see XXXX just sitting on the ground with uh the two guys XXXX and XXXX and XXXX sitting on the ground with them and you have some who smile, some who didn't want to smile, some who just gave Kool-Aid faces and some who just didn't want to take no picture but uh I mean this is something that you can't forget. You could just tell my looking at the picture uh what kind of a person they would be and uh I was just like WHOA and with these name tags, that was the only thing that was (XXXXX) about these name tags because you had to wear all the time and uh then the days that we tried to put on a (XXXXX) so you had to be careful where you put them on and lucky we didn't have to take them home with us. We had a little folder there in the crafts room where we could just leave our stuff there. We didn't have to take it home and uh it's great. I look at this picture and it's like this is so 1990 and now you can't, I couldn't imagine how many years ago, maybe 15 years ago that I was here, little girl, with these other participants and it was great, it was great.

S – Well had you visited the Brooklyn Botanic Gardens before you participated in the program?

P – Uhum, actually it was like a little class trip that uhum that we did. I think I went with my elementary school one time. We went there as a class trip and they had people to tour us around and the teachers but you know we had people who didn't want to be bothered you know they would bring on the trips and you know they was kind a being rowdy with the instruction but that was before uh we went on … we had uh we went there and we explored and it was great. It was great so that was the only other time as a class trip that we went to the Botanical Gardens.

S – Okay did you, did you visit the garden after you participated in the program?

P – Actually, no. I didn't get a chance to uh really go back there since. The only time when I did go back was when they uh had invitations like to reunions so uh where that we can come back and you know we get to see everybody but at the time I was mostly in school so I had a lot of activities so I didn't really get a chance to uh go back and see how it was but as soon as I get the invitation for the reunion it's like an invitation to where I can go back and just see how well it's changed, to see if we have some of the same people there because it could be some of the same people there and maybe new people and get a chance other upcoming participants who have been there from '91 and '92 and other years and to see their growth and the other things that they went uh when they was in the program.

S – Hum. Well have you been back since you left school? Have you been there recently or uh

P – No, I didn't get a chance to go back. (CHUCKLES) No I know uh the very last thing they sent me I think they having something coming up again, a reunion, but I definitely going to send it back to let them know I am going to come because I curious to see now from then. You know it's 2005, God forbid how everything looks now from 1990. I know things are totally different and uh I'm definitely going back to the reunion, definitely going to go back. I just want to see uh what new things, what changes they've made and maybe I can get my daughter you know take a nice day to go over there with her and uhum and see the different environment, see the trees, you know, see the different kinds of plants, you know just have a learning experience for her.

S – Huh, okay, well uh what were your least favorite activities when you participated in the program?

P – Hum, least favorite? Only thing my least favorite was the journals. I didn't like too much writing at all. I was not a good writer,

(BOTH CHUCKLE)

P – not a good writer at all and days when we had to write in those journals when we came back from those trips and they told us we had to make sure that we at least write a page full. I can't get no other words out. Sometimes I can't get a page for anything. I may be stumped there and they'd say just write anything, just write anything and I'd say well what. I can't remember what to write or what and you'd be surprised. Some may be nothing, some wrote like a sentence. They gave it in. I'm like wait a minute. That's all you all wrote – a sentence? You all didn't have anything else to do and they knew if the time they did that they's going to be the problem people from the one sentences. But I remember when they came around and they say oh whoa, I see you brought it to life. I see that and sometimes I can sit there and write and write and write and then after while just stop and uh sometime will read it, read it out loud and that was the only other thing I said you got to read this out loud. I want to read this for me only, don't want them making fun of me. But that was the least thing, the least thing writing in the journals and then we had to you know speak out loud what we wrote. That was the least thing I did not enjoy.

S – Well, how was it uh having to read your journal in front of other people?

P – Actually, uh it had to help me for some reason cause after I took some speech in college and I didn't realize by me speaking from these journals that it was actually going

to help me along in college because I mean it was nerve racking because you're standing there and you're you're speaking in front of them and it's just nerve racking and you see you know we had to speak loud and we had to pronunciate and see who was paying attention cause you cal tell who was not paying attention, who was making googley faces at you trying to make you laugh. Some people would try anything to try to get us to laugh and they knew who it was and they'd tell them to stop, don't do that, don't do that, and we tried to be serious about it but sometimes we all had to laugh about it because it was just too funny but I think they kind of kicked in the nerves for most people because some people was real nervous and they could not speak in front of us so we tried to find a way to help them out to get them so relaxed and everything and I was very surprised by uh from that time and then when I got into college, it was like whoa, I got speech. OH! You know experience now and I'd be in a bigger crowd, and the classes were big, older people, bigger people, my professor, and we getting graded. You see here we wasn't getting

but then at the time when I was getting graded but it was totally different from a small crowd to a big crowd, I'd rather speak before a smaller crowd.

S – Hum. Okay, well, you mentioned that you had done some gardening uh out in the garden.

P – Unhum.

S – Describe that experience.

(END SIDE A – START SIDE B)

P – and guide us. It just really turned out to be great uhum it's just I didn't know too much and I was afraid that uh cause I was looking at everybody else to see if I did mines

right. I said well I want mines to be accurate and if I didn't do it right, I'd say let me make sure that I'm taking this dirt out cause they gave us the tools and I said am I doing this, am I doing this right? So you had to ask you know other you know instructors to come and see if I'm doing it right and they would show me you know how the techniques you know, how to do it this way, how to put it in the ground this way, and uh when we was finished well you know have them to come there and see and they're like okay you did a good job, oh whoa! and that made me feel better cause you know to me I was a beginner but then as a beginner I uh to me felt more as advanced because I felt that uh from what they taught me that I could easily pick up from that time quicker for them by showing me okay I did this, I have to put this in this way, I have to do this, I have to water it and do whatever other things I had to do for the plants and then likely you know the other participants need help you know we'd go around and help each other so that was also great helping each other out hum in the gardening and uh that was great, helping each other out because some of us didn't know what we was doing, beginners, and they told us no matter what, that's okay, that's okay, don't worry about it, don't worry about it but then we felt that we mess up we kind of felt bad. We didn't want to mess up. We wanted to be like everybody else and get it right the first time but they said if you didn't get it right the first time, you could keep on going, keep on going, you know, cause you needed to practice, somebody here to help and they said well if you've finished this then just go around to see if anybody else need help and that's what I did. We went around to see if anybody needed help and sometimes we'll uh just in case ask them the instructor to just come and help us just occasionally if one of us may be wrong, we'd have the instructor come over and make sure that we were doing this project correctly and that

would be it. I mean that us the experience. It was great, I mean besides getting dirty and hot. They wore these clothes and the bugs. That was, oh God, when we walked in that children's garden and that was like a little trail, oh gosh, there was such a beautiful trail, so beautiful. It's like you could have a wedding there. That's how beautiful that trail is and the thing about the show, we was complaining gad this is a long trail, this is so long. When are we going to get there? When are we going to get there? But when we got there, I was like WHOA! This is beautiful! You take pictures, you have weddings, do all such other kinds of things there and these bugs. They have these big bees and dragon fly. I seen this one fly I was like what is this? And they would cover us with little bug repellent so we was like uh make sure you cover, cover yourselves cause there's bugs all around and I remember one person got stung with a bee and I was afraid. I didn't want to get stung cause some of those bees was as big as dragon flies and I said no, I can't and it was hot and we didn't have too much covering around our face because we had all these old clothes and they did spray us but it was burning hot and I said we got to be out here in this sun, planting, but after a while things die down. We kind of got calm. I think the temperature died down after a while, later on after the sun went on the other side so we had some more shade so we was able to sit down and we was able to have a little picnic and we was able to enjoy ourselves that day.

S – Okay, well, do you remember if you were able to harvest any of your plants from the garden?

P – Hum actually uh I don't remember that part. I don't think we did but I remember I think what they did, they had some of the uh I think actually we did do a harvest. Yes, we did do a harvest that I remember and we like uh little feast with the harvest that we

took some of the like plants and things that was growing in the children's garden and they made little something with the vegetables and everything and we was able to eat it and enjoy it. It was so good. Some of the plants, I think it was zucchini and uh tomatoes and cucumbers and corn. It was good, it was good. I remember we did have a harvest. I think they usually have their harvest in October usually but we did have a harvest there and I remember that they did have one and I believe I did bring a plant home at the time when we did the harvest. I just don't remember what plant but I remember we was able to bring a plant home from the harvest and I believe when I got it home, I don't think I really used it. I think I let it sit there and rot.

(BOTH CHUCKLE)

P – I don't think I was able to use the plant but I remember we did have a harvest and with some of the vegetables and some of the fruits. It was delicious, very good.

S – Well, the plant that you took home, did you share it with your family?

P – Oh definitely. We had a big family. I had my brother's wife and my brother, me and my sister here. Well my brother he's a big eater so uh of course, my mother would find a way of using that, whatever vegetable that we brought home. I just don't remember what it … but she make something out of it or uh and she uh we would just eat it.

(BOTH CHUCKLE)

P – She was sure she made something out of it. She didn't want to see anything go to waste but uh I know she did use some of it. I don't think she used all of it and she used it for dinner with what she had and I enjoyed it. I said nobody else want to eat it, said I will. I said it was something I participated in, I helped grew, I'm going to eat it. Nobody else don't have to eat it but me.

S – Well and so what was that like? How did you feel about that?

P – OH, I was like WHOA! I did this. (CHUCKLES) I was like WHOA! I say just the fun to help. That's why I was thankful that you know with the instructors, with XXXX and XXXX, they were there to help us, guide us, and just to show us properly how the plant, how well to keep them you know to grow into such beautiful plants and beautiful fruits and vegetables. I was able you know to stay for that. They was able, uh they would just go out of their way to help us and make sure that we were doing it properly and that uh it doesn't turn out to look awkward but it can look uh fresh and beautiful but I'm thankful that they was able to go out of their way just to do that and to show us particularly what kind of seeds and the type of plant and what to look for and how to recognize these plants and that was the most important thing, how to recognize these plants, to tell if it was a regular plant and to tell it was a plant you can't eat because sometimes you wouldn't know just by looking at it that it was something you could eat or just something you can plant alone and sometimes the distinction was just uncanny that you wouldn't believe this is not a fruit. This is not a vegetable. This is not a plant. So I was like wait a minute. WHOA! I didn't know that but that was the most important thing and that was to recognize what is what. What kind is this? What's this? What's that? And to use that experience at home that if you want to grow your own plants and fruits and vegetables that you can get the tools and you can get the proper assistance and you can be able to show others okay you do it this way, you do it that way and you have your own little harvest at home.

S – Well, and so how did your family uh react to bringing things home?

P – Oh, well, it was free and you can't complain. (CHUCKLES) I mean it was uhum to me I think they loved it. Hum I don't see what parent would not love what their kids bring home that they helped to make. I mean that was an experience that any parent would enjoy their children bringing home things that they made or were helpful in the garden. I mean what other parent wouldn't.

S – Yeah, okay, well, you've already described a little bit about the staff and your teachers. What do you remember most about them and describe them to me.

P – Oh, you shouldn't of went there, you shouldn't of went there. Oh gosh! Whoa! XXXX, hum, hum, hum, she was just so, so great! I can't describe any better person. She was just a very patient, very patient person with us. I mean some of us got on her nerves but she was able to hold her ground. She would work with us so well and just the point with her, I mean just showing us and guiding us and helping us out and being and seeing how enthusiastic in her face, her face expressions, the way how she would show us and teach us things. You could see the joy in her face like whoa they're willing to try this. I think we should be more courteous, and be more understanding and just you know for her to go out of her way and uh to do something like this and uhum XXXX was just a great, great, great experience. It was … she reminded me of one of my teachers I had in elementary school and I could just look at her and just see that whoa she is going to be a great, great person. I don't think anybody will forget her. She was just so amazing with us.

S – Well and you said there was a couple other people.

P – Yes, XXXX. Oh whoa! She was like the grandmother of all grandmothers you see for the program. She was just a doll. Oh she was, she was, I mean she was like the

grandmother that you never had. I mean she was just so kind with us. She was just so sweet. That was the thing uh she had this sweet, innocent quality about her and she would work hard to make sure that we get whatever you know we needed or get things done in the program, to make sure that whatever XXXX needed or what hum, hum the intern XXXX needed, she would make sure and go out of her way and, and, and, just get it and have it for us, I mean, she always had a smile on her face and I loved that because just by looking at her smile you say whoa! she's always smiling. It's something, some kind of quality you have, you know, of a person, you see them smiling a lot and I'm looking at this picture. She just had the biggest, brightest smile and she had glasses and hair pulled back. You know, she just looked fresh. She looked beautiful and uh and that was just the grandma of all grandmas. I see her as a grandma. She had to deal with these kids as great children and she was kind of the protector of us. She had to look over us, watch over us sometimes when XXXX wasn't there. She had to be the protector to make sure that if XXXX wasn't there of course you know they let us know we give her respect. You know we don't try to go over her and we treat her the way how we treat XXXX, just how it is. Sometimes some of us would get upset with the boys cause we try to tell them come on, look, be respectful, and we also kind of say see with XXXX not here you all can do that but now we have XXXX, give her respect. Show her respect. And we had to say uh to the boys, come on, stop it. You know, you don't treat somebody disrespectful cause she's going out of her way to help us. She's older than we are. We give respect to these people cause they're helping us. They're teaching us. How would you feel if somebody did that to you? You know, you constantly, you bothering these instructors when they're trying to make a way of us to learn and to educate us and she was just an

amazing person. I can't see no other better people they had uh for this program at all, no better and uh XXXX. She was like kind of one of the gang. She was kind of one of the gang. She was hum an intern that was working with, she was kind of one of the gang. We had fun with her and she would be like one of us, a good pal that we could talk to and uh and listen to and sometimes she could be serious and sometimes she, she wanted to be serious and that was one thing I liked about her. She was just ordinary and she just kept it real and she was great. She was great with the people and I think she really held her ground here hum as an instructor with them.

S – Okay. Well, just after reflecting on it, what did this summer program mean to you?

P – Somebody has rung my bell. Can I just pause for two seconds?

S – Oh sure.

P – Okay, I'm back.

S – Okay, what did the summer program mean to you as a child?

P – Uh, it meant a lot because uh well I didn't really get a chance to do too much as a child when I was growing up at that time and most of the time we'd go outside and uh we'd just play across the street and play with rocks and everything in front of my building but uh when I got a chance to participate in a program, uh to me that was just great because I was able to go on a bus and travel and go elsewhere. I'm sorry can you hold on one minute?

S – Sure.

P – To me that was uh different environment you know I was able to travel on a bus and uh go to something different beside being on my block and not playing with just my family and my brothers and sisters, I could be able to play with other people and share

interests with other people, with other girls, with other guys that was there and meet new people and just have a good time but a good time learning as well as uh just, just getting an understanding of what I'm getting myself into because I didn't think this was like a program that was fit for me but when I first got there I didn't think that okay, well what am I getting into, what kind of program but after a while it kind of got to me, kind of grew to me and I'm glad that I had somebody you know like my teacher who was able to just put you know my name down for something like this because this is great and uh I really appreciated just the experience you know at the time. Hum I was only ten so of course I didn't have no life at the time, I was just a regular little girl. I said where was I going to go at for a ten year old?

(BOTH CHUCKLE)

S – Well and what do you think would be the likely hood of your participating in the program without having been able to ride the bus there?

P – Hum, let me see, likely hood, likely hood. Uhum, I wouldn't know. I mean the idea of them coming to get me cause hum that was part of, you know, for them to go out of their way to help me to get there. I'm sorry, uh one more minute. Whoa! Cause I thought that was my enjoyment. They're coming to get me and uh my parents would have to go out of their way to take me there and for them to come out of their way and pick up participants who lived close enough there to Botanical Gardens, that was just great and I didn't know they was going to be providing bus services and so uh I got started and I said Whoa! We get a bus too. I said we're going to get there with a bus cause I'm not sure that I even know that we were getting a bus there. I'm thinking that

okay our parents are going to take us, to drive us there, you know to the Botanical Gardens.

S – Okay, well, we're getting there. Seems like you kind of need to go or whatever.

P – I'm sorry, one more minute. Somebody's ringing my bell.

S – Okay, well uh what meaning does the summer program hold for you as an adult?

P – Oh, whoa! As an adult? Uh, I feel that this uh program is really going to influence other participants uh from the old generation as myself and to the new generation. To me this program is not only influential but it's educational experience that I would think nobody uh should take advantage of hum or, or, or try to you know how to I put it, not take advantage, but try to make fun of it and don't take it seriously. It's something that if you're willing to uh go out of your way and learn about hum such new and hum things or interests you know plants or other things you may be interested in, to me go ahead and take the opportunity. You never know what you are missing, hum I'm thankful that I was able to get you know, to get from these instructors that taught us so much and I believe whoever else is there to me they would do just as well a job than these three great women were doing with us and to me uh this is, this is, I don't see how nobody can you know take an opportunity like this. This opportunity is once in a lifetime and sometimes you don't know what you're missing out and for me now just, just to see that they still have this upcoming program and still invite the old participants uh to come there and be a part of the reunions and to have us introduce ourselves to the upcoming participants uh this is a great experience cause you see, you see you know new faces, see old faces, see familiar faces and uh this program can really help you out. It's an excellent program. Uh I love it and I think it should be for not only for those who are selected. I think it should be for all

children. It shouldn't be just for selected. I think it should be for all children cause it could be an interesting experience cause like I say it's something that somebody could be interested in as a career when they go to college and they can study upon it and you never know. They can do well and they can be able to go and say you know what I was able to get my learning from the Brooklyn Botanical Gardens.

S – Hum. Would you take your daughter?

P – Oh definitely! Definitely, definitely, definitely, yes, yes, yes, I would definitely take my daughter. Not questions asked.

S – Okay. Well just some demographic questions real quick.

P – Unhum.

S – How old are you now?

P – I'm 24.

S – Okay and what is your family background, your race, and ethnicity?

P – Well, Africa-American, hum mostly my family is from down south, NC, SC, hum AR and uh basically our religious background uh we are Christian and uh basically we are strong, committed family. That's the best words I can say – strong, committed, loving family. I will put it in those words describing my family.

S – Okay and uh you occupation?

P – Well, right now uh I'm a sales assistant right now uh working at XXXX but at the meantime uh right now I'm currently going to uh for as a paralegal for real estate because as I said I want to get into or civil rights law because I uh that's kind of two areas of interest that I want to get into while I'm in law school so that's what I want to get into.

S – Okay, okay. Well uh just in wrapping up are there any other things you got out of this program that you would like for me to know. Uh I know you said you had some materials that you had from your experience in the program like your photo. Were there any other things you were able to find?

P – Uhum actually it was a part that we took a leaf that uh we used (XXXXX) and they took us in a certain part of the Botanical Gardens and we picked out these leaves and uh part of it was to take these leaves and trace them and we were coloring them and they would hang up our pictures and for some reason, I was like why are we uh tracing leaves and coloring them. I said what's this? You know, I'm a youngster. I don't uh you know it was just the idea was so different and I was wondering why we was taking leaves and drawing them and everything. I was like whoa! I said this is my leaf! I said I did this! And it looked just like the leaf. You'd be like uh (XXXXX) that shows the technique to how to uh trace the leaf on the paper, we can color it, we write our names on it, and we show everybody our leaves and everything. That was great. Our little arts and crafts, I mean, a little once in a while, we do arts and crafts and uh once we was finished with the leaves, we would save it. What I did, I saved that leaf and I put it on the paper where I drew it and I noticed that it withered up and it got old so and uh it (XXXXX) us now. (BOTH CHUCKLE)

P – So I was like whoa! I have to save these little leaves. They were still sitting in there. I say whoa! for the little blossom that just turned to crumbly dust but the picture is still just the same, nothing different, and I was like I did this when I was ten. I said whoa! It was great! It was just really great and uh I enjoyed it. The little arts and crafts, you know, just for us understanding and knowing and participating in the little projects that

they give us it was like a virtual classroom. You can't get nothing better than that and I would say well I just did school here and now I'm doing more school in here and to me it was great. It was nothing different. They had teachers and we was like in the classroom, they had the students and we was learning and so I was having fun. You know they didn't take things to seriously but they would make it a way that it was fun but we wasn't too bored and we was able to take little trips outside and have a good time. Uh I can't say too much but this program was just great, great, great and I will recommend it to all children, not just those picked, but all children and this would be a way for them to understand. They may not understand at that time like I was. They say you may not understand things when you're that young but eventually, eventually when you get older you'll be like you know what they did help me out. They did teach me. They did lend me a hand when I didn't know what I was doing and now look at me now. I can look back and say you know what look what these people, beautiful intelligent people taught me. Look where I'm at now. Look how far they, they, they got to showing us what an experience that you can gain from this and you can't keep that better feeling. It's like a chill in my body now because I would never think that for me to reminisce this far on this, it was just such a chill. I mean right now I got goose bumps right now because you don't know. Things like this, it's just so, such, such, such a treat for me just to go back and to reminisce and just the idea of talking about it, it's great and I didn't have a problem by even talking about it because I just felt great. I mean look how far I've gotten. Look at what things I can show my daughter, that I can remember, and I can just go back and if I can now, I mean, at the time I was able, I was so sad when I had to leave there when I gave XXXX a hug, and I gave XXXX a hug and I gave XXXX a hug,

I mean from that time I gave them a hug, that was my appreciate to them, how much that they meant to me, how much that they taught me, how much that they helped me out and I couldn't thank them no other way. I mean they did such a great job with us and now if I can now, if they were still there, I don't know if they are, I mean truthfully I would just show them the picture and now to me that would be it if I showed them the picture, I think we'd just fall out and just cry because from that picture they would never think that I held on to something this treasurable ever and they would enjoy it and I think that would be something. I'd said I have to let them see this. They're going to get a real treat out of this picture and they're going to have a ball.

S – Well, that's wonderful! I can tell just by hearing you talk that uh this really meant a lot to you.

P – OH!

S – Okay, well thank you so much. It was a real treat to talk to you.

P – It was a treat talking about it. Thank you so much.

S – Okay, well I will talk to you later then.

P – Okay, all right, take it easy and thank you once again.

S – Thank you.

APPENDIX G

TRANSCRIBER'S PLEDGE OF CONFIDENTIALITY

As the transcriber of this research study, I understand that I will be hearing audiotapes of confidential interviews. The information on these audiotapes has been revealed by study participants who participated in this study on good faith that their interviews would remain strictly confidential. I understand that I have a responsibility to honor this confidentiality agreement. I hereby agree not to share any information on these audiotapes with anyone except the primary researcher of this project. Any violation of this agreement would constitute a serious breach of ethical standards, and I pledge not to violate this agreement.

Transcriber's
Signature_____Date_____

APPENDIX H

PARENT LETTER TO 2004 PGR SUMMER PROGRAM PARTICIPANTS

July 16, 2004

Dear Parent:

Greetings! I am writing to you in regards to an important research study that is being conducted by Brooklyn Botanic Garden (BBG) and the University of Tennessee. This study is looking at the impact of the Project Green Reach program on youth in the Brooklyn community. This study is important in that it will help the researchers and BBG staff better understand children's experiences based upon their involvement with Project Green Reach. Information gathered from this study will be used to enhance the program.

During the week of July 19, Susan Conlon, a researcher from the University of Tennessee, will be observing the activities of the children and their instructors in the Junior Botanist/Plant Investigators program (Project Green Reach's summer program). These observations will take place during the day while the children are at the Garden. Ms. Conlon will be making observations of children's activities, discussions, and interactions and taking notes in a journal. She will be doing this to gain a better understanding of how the program works.

As an observer, Ms. Conlon will not have any interaction with the children. Your child will NOT be interviewed or in any way be identified as part of this project. Your child will be told about who Ms. Conlon is and what she is doing, but she will not be participating in any of their activities or otherwise interfere with the flow of their activities in the garden.

If you have any questions, please call me at XXX-XXX-XXXX. Thank you in advance for your support of this research project.

Sincerely,

XXXXXXXXXX
Coordinator of Project Green Reach

Susan L. Conlon
PGR Researcher

APPENDIX I

JUNIOR BOTANIST SUMMER ADVENTURES APPLICATION, 2002

The Brooklyn Botanic Garden and
Project Green Reach Present A Unique Program:

JUNIOR BOTANIST SUMMER ADVENTURES!

GOAL: To give children a thorough opportunity to explore the spectrum of botanical pursuits from the scientific to the cultural. To give children the opportunity to practice skills for understanding plant life and the environment. To take children from Brooklyn on a two day overnight trip to Black Rock Forest where they can experience life in the forest. To give children a chance to be gardeners in our Children's Garden.

FOR WHOM: This program is open to students in fourth through sixth grade who have participated in Project Green Reach during the 2001 – 2002 school year, with their teacher's recommendation.

WHEN: The program runs from 9a.m. – 2 p.m. Tuesdays, Wednesdays, and Fridays during all of July and part of August. These dated are: July 2, 3, 5, 9, 10, 12, 16, 17, 19, 23, 24, 25, 30, 31; and also August 2, 6, 7, 9, and there will be a graduation ceremony / celebration on Saturday Aug 10th. Also, there is a parent orientation workshop where parents come to the garden and meet the staff

WHERE: The program will take place at the Brooklyn Botanic Garden and include several day long field trips to other cultural institutions.

TRANSPORTATION: We will provide a van to pick up and return each child to his or her home every program day except graduation day and parent orientation day.

COST: A fee of $5. The program is generously supported by NYC foundation and Corporations.

STAFF: [redacted] and our very talented college interns.

BASIC DESCRIPTION: The program uses theme based curriculums that address aspects of botany and horticulture. Daily students will work their own plots in the Children's Garden, perform science experiments, and practice fine arts as well as related crafts.

FOOD: Children must bring their own bag lunch.

APPLICATION PROCEDURE: We must receive a teacher's recommendation and completed student / parent applications by the time we visit your school for the community project. A limited number of students will be accepted.

Project Green Reach-Junior Botanist Summer Adventures
Student Application

Congratulations! Your teacher has recommended you for our exciting summer program at the Brooklyn Botanic Garden. Please fill out the following pages and return this application to your teacher. A limited number of students will be selected, good luck!

Name_____

Address_____

_____

Home Phone #_____ Work Phone#(Parent)_____

Emergency Contact (Name and Phone Number)_____

Name of Parent / Guardian_____

Name of Teacher_____

School_____

Grade_____ Birthday_____-_____-_____

Answer the following questions in the space provided. If you need more space attach a sheet of paper with you name and answers on it.

---

1. Name three reasons why you believe you would be a good Junior Botanist.

2. Name at least two things you would like to study if you are chosen to be a Junior Botanist.

3. You may remember that a botanist is a scientist who studies plants. What kinds of experiences have you already had with plants and with science? (memories of your visit to the Brooklyn Botanic Garden, your own experiments, growing plants at home or at school, library study, nature / science shows on TV, nature / science field trips, etc. . .)

4. What kinds of plants do you like and why?

5. What does science mean to you?

6. Would you consider becoming a scientist? If so, what mysteries or problems would you most like to study?

7. If you do not want to become a scientist, what would you like to do with your future?

APPENDIX J

REPORT TO THE XXXXX FOUNDATION, 2000

BROOKLYN BOTANIC GARDEN
JUNIOR BOTANIST SUMMER ADVENTURES PROGRAM
2000 Report to the [redacted] Foundation

Brooklyn Botanic Garden is grateful to the [redacted] Foundation for its support of our 2000 *Junior Botanist Program*. The Junior Botanist Program is a unique six-week summer science enrichment program for academically talented and motivated Project Green Reach students. Since its inception, the Junior Botanist Summer Adventures program has been recognized as an advanced science enrichment program for inner city children. To satisfy the reporting requirements of the [redacted] grant, we are pleased to submit a report on this summer's activities.

2000 Junior Botanist Participants

We received over 40 applicants for this summer's program, and selected 11 of the most outstanding students through an application process that included teacher recommendations, written statements by applicants, and interviews with each student.[1] The Junior Botanist program is dedicated to creating an interactive and stimulating learning environment for each student. This small group size allows for a 4:1 student/teacher ratio, thereby ensuring a comfortable and highly productive learning environment.

Since this program was founded, it has consistently served a high number of students from families that have recently immigrated to the United States. The 2000 Junior Botanists represented eight different countries, including the Caribbean Islands, China, India, Ireland, Jamaica, Nigeria, Pakistan and Trinidad.

It is important to note that each of the Junior Botanists come from economically disadvantaged families and would not have the means for attending another summer program. BBG provides free transportation to and from the Garden, which ensures that the children, who often live far from the Garden, have the opportunity to participate in the program.

The eleven 2000 Junior Botanists were:

- [redacted]

[1] The usual number of students per summer is 12. However, this year, due to family issues, the 12th selected student was not able to attend.

[redacted] are two of this summer's students whose participation and enthusiasm stood out. [redacted] a young sixth-grade girl from Pakistan, was an observative and thoughtful participant who not only took pride in tending to her own plot but also in helping her fellow Junior Botanists with theirs. [redacted] — who dreams of becoming a Marine Biologist — also relished the opportunity to participate in the Junior Botanist program. At only twelve years old he had incredible knowledge about the environment and environmental issues, and was constantly asking questions and documenting the answers.

Learning at the Garden

The goal of the Junior Botanist program is to intellectually stimulate and challenge the students beyond their normal educational level. The program's long-term goal is the hope that Junior Botanists will continue their science education through college and hopefully onto a science career.

Junior Botanists spent time learning to grow vegetables, flowers and herbs in BBG's recently renovated Children's Garden, and studying botanical and environmental sciences through lectures, lab experiments, ~~drama, music~~, and art. Each day, students had a basic botany lesson, covering fundamental topics such as the parts of the flower, pollination, fertilization, photosynthesis, wood formation and seeds. We also introduced more sophisticated scientific concepts such as dendrology, taxonomy and transpiration through lectures and lab experiments. Students learned how to use plant identification keys and how to identify trees by using leaf patterns. These subjects are normally taught at the college level. Introducing Junior Botanists to these topics early on gives them an important foundation for furthering their science education.

Each year we try to incorporate new subject areas into the program's curriculum. This year we introduced several new projects. *The Composting Project* was a great favorite. With assistance from the Garden's Urban Composting Project, the Junior Botanists learned about soil and compost and then made their own compost to use in their vegetable plots. Students collected organic waste from home, such as vegetable peelings and eggshells, added soil and other green cuttings, and "cultivated" compost in bins stored at the Garden. Over the course of the program, the students worked in pairs to decide what additional items to add to their compost, monitored the compost's temperature and finally worked together to add it into their vegetable plots' soil.

The new *Beans Grow Lab* proved to be an excellent way of introducing the Scientific Method. Using an actual grow lab, the students conducted experiments to determine the best fertilizer for growing beans. They compared commercial-chemical and organic fertilizers, set up a control, and then measured the growth of the beans on a weekly basis. The students had to develop their own hypotheses, record their observations and write their own conclusions.

This summer, we also started the [redacted] project. The goal of this project was to enable the students to give "tours" of the Garden to their families and friends, thereby applying the knowledge of the garden and plants they gained while in the program. Each student created his or her own guidebook, composed of different work sheets with basic information (names of the different plants in the Garden, a map of the Garden itself, etc.) and arranged to reflect each student's interests and tastes. Each child then created and decorated their guidebooks with recycled newspapers and petals found in the Garden and from their gardening plots.

Once again, we conducted our successful ~~*Ethnobotany Project*~~, or the study of the importance of plants in different cultures. The international make-up of participants has led to exciting

developments in this part of the program's curriculum. Each participant contributed a unique base of knowledge about plants and their uses, family traditions, and different environments to the explorations of the group. We even involved the children's families by sending home questionnaires about the uses of plants in their countries of origin, so that the Junior Botanists and their families could work together in exploring their background. Finally every student wrote a recipe from their family's country, with a description of their family's country and history. All the recipes were collected at the end of the program into a "cookbook" that was sent home on the last day.

Surrounded by Nature

This summer, Staff traveled with Junior Botanists to rural Connecticut for the program's three-day outdoor adventure in Black Rock Forest. The students applied many of the skills they had learned at the Garden in the forest. They used tree identification keys to identify the most common trees in the area and during their hikes focused on plants they had studied, such as bryophytes, which include lichens and mosses. They also saw many animals in their natural habitats, including snapping turtles, many different reptiles and fish. One night under the stars, the Junior Botanists roasted marshmallows and went deer spotting with Black Rock Forest staff. Students helped with the preparation of all of their own meals; one of their dinners was a pasta dish flavored with basil they had harvested from their own gardens! And they also went blueberry picking, eating the delicious fruit for dessert. This activity actually led to the discussion of the difference between organic and commercial fruit, as the students noticed how blueberries found in the wild have a different taste and size than those they buy in the supermarket or deli. Overall, this three-day trip gave many Junior Botanists their first intensive contact with the natural world, allowing for an unforgettable experience.

Continued Science Enrichment

In an effort to offer opportunities to Junior Botanists alumni for continuing science enrichment, PGR has an ongoing collaboration with the Christodora-Manice Education Center to introduce the children to the Center's excellent educational programs. Junior Botanist alumni are able to participate in this program, which involves outdoor camping and natural science instruction at the Center's 85-acre campus in the Berkshires. These students also have the opportunity to participate in Christodora's other programs and services, including its college scholarship program. PGR provides each Junior Botanist alumni participating with a $100 scholarship to attend. Students are selected to participate in the Christodora-Manice Education Center in the spring. In the summer 2000 program, four alumni from the 1999 Junior Botanist program were chosen to attend. Since the inception of the Junior Botanist program, over fifteen Junior Botanists alumni have been chosen to participate in this unique opportunity.

BBG makes it a priority to maintain a close connection to the Junior Botanists. On August 12th, family and friends gathered together to celebrate the graduation and conclusion of the 2000 Junior Botanist program. Junior Botanists received certificates for "Outstanding Garden Skill," "Perfect Attendance," a garden-tool kit for the continuation of gardening, and a Family Membership for one year to encourage them to continue to visit the Garden and bring their parents and siblings. They also received an invitation to return to BBG for the Harvest Fair on September 16th and the Holiday Greens Workshop and Party held each winter for all Junior Botanist alumnae. BBG staff also makes themselves available to these children as they move into secondary school and on to college. The Garden offers more than 80 internship opportunities to young adults, and Junior Botanist alumnae are encouraged to return to the Garden again as high school interns. It is the hope that Junior Botanists

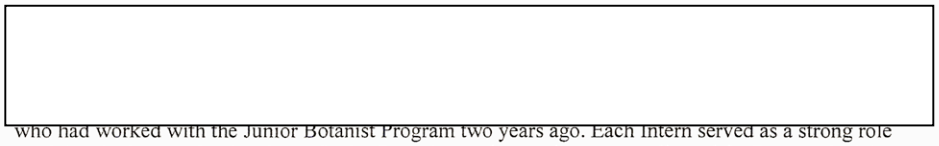
will continue to come to the Garden, explore science throughout their academic years, and consider future science careers.

Looking Ahead

Next summer, we are planning on having a parent orientation at the beginning of the program. In general the parents are highly supportive of their children's participation: Junior Botanists are usually high-achievers and naturally adept at science. However, the overnight trip to Black Rock Forest is often the first time any of the children have been camping. Given the students' cultural diversity, it is important to assure their parents that special cultural customs are observed. In the past we have conducted these one-on-one counseling sessions with the parents; going forward we believe a group orientation will be more effective. This will not only appease the parents' concerns but give them an opportunity to meet other students' parents as well.

We are also continuing to plan new program areas for the curriculum. For next summer, we are working on developing projects on Plant Genetics, Urban Ecology and Nutrition.

Staff and Interns



who had worked with the Junior Botanist Program two years ago. Each Intern served as a strong role model and educator for the eleven Junior Botanists and, most important, allowed for Program's 4:1 student/teacher ratio.

Organizational History

Education is a primary mission at the Brooklyn Botanic Garden. Our hope is that by investing in young people early on in their lives we can ensure that future generations will develop an appreciation for the living world around them and a sense of stewardship toward the natural environment in their home communities and beyond. Since its founding in 1910, BBG has been an internationally recognized leader and innovator in children's environmental education programs. Our programs play an important role in the improvement of science education in New York City, and have served as a model for the ways in which museums can become active educational resources for the broader community.

The cornerstone of BBG's education programs is our Children's Garden program, begun in 1914 as one of the first children's environmental education programs in this country. Today, BBG serves more than 100,000 children annually through a wide range of on-site, in-school and community-based programs. Our programs provide an important foundation for the science literacy goals of city, state and national education mandates (among them *Benchmarks for Science Literacy*, *National Science Education Standards*, and *Goals 2000*) by modeling hands-on, inquiry-based science education and opening new doorways for information about the world of plants. We encourage children to use their curiosity to explore and learn about the natural world around them. In so doing, we help young people develop fundamental skills, such as a keen sense of observation and the ability to pose questions, construct and evaluate hypotheses, and communicate ideas and experiences to others.

APPENDIX K

PROJECT GREEN REACH PROGRAM DESCRIPTION, 2003

BrooklynBotanicGarden

Project Green Reach

Program Description 7/03

Project Green Reach is a fourteen year old, award winning, educational outreach program designed to encourage teachers and students from Brooklyn's Title I public and private schools to participate in hands-on inquiry-based science while developing an awareness and concern for their environment. In the past PGR previously worked with elementary through high school aged students but cancelled the high school component because of scheduling conflicts, currently the program serves kindergarten through eighth grade. Project Green Reach has three main goals:

- **Work with Brooklyn teachers and students to encourage the use of inquiry-based instruction while meeting the New York City and State Science Standards.**
  At the end of every semester teachers are asked to evaluate the PGR program in terms of how well the PGR program helped them to meet these standards. The PGR staff has been pleased to see that teachers and principals agree that this program not only helps students meet the New York State Learning Standards, but also encouraged teachers to integrate subjects such as Math, Language Arts and Social Studies.

- **Provide ever child in the program with a plant they can care for.**
  At the Brooklyn Botanic Garden we envision that ever child in Brooklyn should have a plant of their own to care for. PGR is one way we work toward this goal. Students reaffirm the importance of this work by sending our staff thank you letters and reporting back to us on their plants' growth.

- **Encourage teachers and students to develop an on-going relationship with the Brooklyn Botanic Garden.**
  Project Green Reach provides a bus and trained guides for classes when they visit the Garden. We have recently begun to ask teachers and students how often they have visited the Garden in the past before they became PGR participants. We were shocked to learn that many children and teachers had never visited the Garden before participating in PGR and were unaware that this wonderful resource was right in their own backyard.

Project Green Reach accomplishes these goals by holding two teacher workshops during the semester. During the first workshop teachers are introduced to the staff, program sequence, the four PGR curricula, and inquiry-based format. During the second workshop teachers evaluate the program up to that point, share lesson ideas and resources, and receive hands-on horticultural training. In addition to providing tours of BBG, the program also travels to each classroom it serves and provides hands-on learning for students while modeling inquiry-based instruction for teachers. During this lesson each student pots up their own plant and additional planting materials are left in the classroom for research related to the questions students have about the plants they are growing. Finally, students and teachers work together to apply what they have learned about plants to a community horticulture project. PGR provides materials for classes to complete projects which include planting school gardens, window boxes, individual potted plants, as well as indoor and

outdoor container gardens. Schools often partner organizations in their local communities such as fire houses, community gardens, and nursing homes.

Throughout the fall and spring semesters the PGR staff works with teachers to select 12 lucky students to participate in our **Junior Botanist Summer Adventures Program**. The students selected must be from financially disadvantaged homes and have a high interest in science. Typical days for a Junior Botanist consist of gardening, working on science experiments, arts and crafts activities and journal writing. The students are picked up and brought home by a bus provided by the PGR program. The PGR staff feels that the small student-to-teacher ratio provides the students with the personalized attention needed to push these students to the highest level of achievement possible. This personalized attention is possible due to the participation of a selected core of excellent college interns. The students are asked to pay a 5-dollar fee for the three days a week six weeks program. Included in the six week program is a three-day overnight camping trip.

Additionally, 7th and 8th grade students who have completed the Junior Botanist Summer Adventures program are eligible to apply to return for another summer at BBG as a **Plant Investigator Summer Science Program**. Plant Investigators mentor Junior Botanists as gardeners and are responsible for working in teams to complete and present a scientific research project of their own interest and design. These students also receive door to door transportation and attend the same previously mentioned three-day overnight camping trip. This program runs simultaneously with the Junior Botanist Summer Adventures.

For teachers who have already completed one semester of Project Green Reach we offer the opportunity to participate in PGR Level II. This program builds on the training teachers have already received and further enables them to be more inquiry-based in their approach to teaching science. Teachers come to BBG for two teacher workshops. During first workshop they receive a curriculum package, materials, and have the in-class lesson modeled for them. This time they deliver the lesson to their classes themselves. During the second workshop teachers tour the garden and develop a tour-based lesson for their class to do on a field trip to BBG. PGR still provides transportation and trained guides for the classes to tour the garden, however, for Level II the teachers also serve as guides alongside BBG staff. One significant difference between the two program levels is that there is no community project in the second level.

Unfortunately due the recent economic hardship facing New York City and the resulting cuts to the budget at BBG, PGR has been scaled back to its core. Currently we are not offering teachers the opportunity to return for further professional development through Level II and we have temporarily suspended our summer programs for students.

APPENDIX L

THE THREE R'S: SKIT ON RESPECT, RESPONSIBILITY, AND RELIABILITY, 1997

THE THREE R'S: Respect, Responsibility and Reliability: A Skit in Three Parts

by [ ]
for Junior Botanist, Summer 1997

(performed by [ ])

I. PART ONE: RESPECT
Definition of Respect: To consider worthy of high regard
(Setting: In the classroom during a session making T-shirts for Black Rock Forest)

One person can be a teacher, explaining how to make the T-shirts. One student begins to make a design, while the other student makes fun of the creation. The teacher than intervenes, and explains that just as each student is different, each T-shirt will be different, too. She will explain that "different" is OK here at BBG, and that mutual respect--where each person sees others as worthy of equal esteem as oneself -- is the expected mode of behavior.

(Props: Two t-shirts, paint tubes, etc.)

II. PART TWO: RESPONSIBILITY
Definition of Responsibility: Carrying out tasks and commitments in a trustworthy and accountable manner
(Setting: A student getting up late to meet the morning bus)

One person can be the student rolling over and going back to sleep after shutting off the alarm, and then makes the bus driver wait. The student will be shown throwing things together at the last minute, not showering, not eating breakfast, and then running onto the bus, and stumbling up the stairs. The bus driver and other kid can be really aggravated. After the two kids get in a short arguement, the bus driver steps in and explains that being responsible means that one fulfills commitments in a trustworthy and timely manner. Explains to the kids that this is especially true when it is a special program of which they are a part, since they are seen as special and responsible already.

(PROPS: Alarm clock, a backpack, etc.)

III. PART THREE: RELIABILITY
Definition of Reliability: Dependable
(Setting: A gardening pair in their garden)

It's incredibly hot outside, and the gardeners are weeding their gardens. The one gardener keeps leaving the garden to get a drink of water, so much so that the other gardener is virtually left by themselves to do all the work. At one point, the instructor comes by and asks the lone gardener why they are weeding by themeslves, and that gardener points to the water fountain and the partner standing there drinking all the time. The instructor than brings the one wanderer back to the plot, and talks a bit about how these gardens are about teamwork, and being able to depend on each other to get the job done. There are no lone rangers here!!

(PROPS: Garden tools)

APPENDIX M

SAMPLE LESSON PLAN AND CLASSROOM ACTIVITY ON POLLINATION

Lesson Plan For Pollination

Goal: To understand the process of pollination by learning about the means and methods necessary for pollination to occur.

Content Objective: Students will discover-

*The definition of the term pollination by examining the various plant parts. Pollination is the transfer of pollen from the male parts of the flower to the female parts.

*Students will examine both the male and female parts of the flower and learn their functions.

*Students will learn that the "3 W's" play a major role in the means for pollination to occur. These are:

(1) Wind
(2) Winged Birds (largely hummingbirds)
(3) Winged insects (bees and butterflies)

*Students will learn three factors which help in the pollination process. These are:

(1) Color of the flower
(2) Scent of the flower
(3) Shape of the flower

*Students will become familiarized with the two methods by which pollination occurs. These are:

(1) Self-pollination- a plant which has flowers with both male and female sex organs may be pollinated within itself.
(2) Cross-pollination- pollination which occurs between flowers of separate plants.

Skill Objective:

*Students will be given a hand-out which provides a brief explanation of the pollination process. From information on this hand-out, students will then on

another hand-out, identify and fill-in the missing letters to various plant parts. (Hand-outs provided by [redacted]).

*Students will have the opportunity to examine a cross-section of a plastic flower and attempt to name the various plant parts.

Activity: Students will construct their own flowers made out of art supplies.

Needed supplies: construction paper, green pipe cleaners, glue, glitter, green and red beads, bumble bees, and blue-tipped wires.

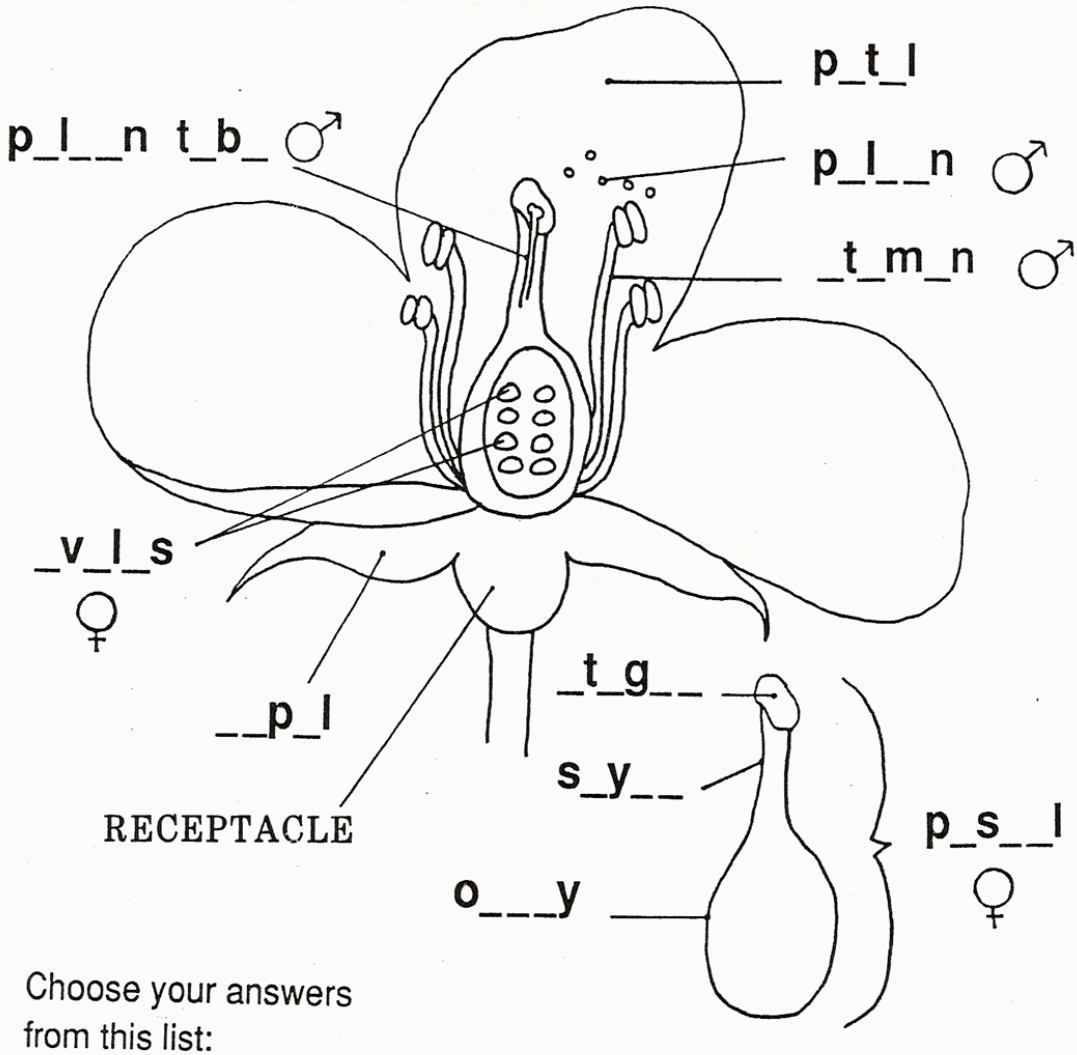
Steps:

1) Each student will be provided with necessary supplies (i.e., 1 green pipe cleaner, 1 bumble bee, 2 blue-tipped wires, 2 green beads, 1 red bead.)
2) Students will be given 1 green sepal pattern each which they will also use to shape and cut out their petals.
3) Students will place 1 green bead on pipe cleaner approximately 1 inch from top.
4) Then place green sepals on top of green bead, punching a hole through the middle of the construction paper.
5) Place another green bead on top of construction paper, this represents the ovary.
6) Bend blue-tipped wires into a "V" shape and stick the base of the "V" into the green bead. These will stand up and represent the flowers filament and anthers.
7) At the top of the green pipe cleaner, place the red bead, this represents the flowers stigma.
8) Glue bumble bee to top of stigma or at base of flower near to the ovary.
9) Use glue and glitter on the flower's petals to designate nectar guides for bees.

Sources consulted for research:

Being a Plant by Lawrence Pringle
Call number: 877 P957 cLIB
Biology of Plants by Peter H. Raven and Helena Curtis

FLOWER PART FILL-INS



Choose your answers from this list:

petal	stamen
pollen	pollen tube
pistil	ovary
sepal	ovules
style	stigma

Name: _____

BROOKLYN BOTANIC GARDEN

APPENDIX N

ETHNOBOTANY AND FAMILY TREE ACTIVITY, 2000

JUNIOR BOTANIST SUMMER 2000
ETHNOBOTANY AND FAMILY TREE

July 27, 2000

Dear Junior Botanists and family:

As a part of our summer program, we are exploring Ethnobotany, the study of how people, plants and places have interacted with each other throughout history and the significance of that for us today.

In order to get a good understanding in this area, we would also like to involve the participants' family members, helping the children make some discoveries about their family tree and their ethnic background.

Following are a few questions that will help in our exciting journey with Ethnobotany!!!

We really appreciate your time and attention with these questions, feel free to add other comments or ideas that you may find interesting!

1.- JUNIOR BOTANIST NAME:

2.-BORN IN WHICH COUNTRIES:
USA

3.- PARENTS BORN IN WHICH COUNTRIES?
USA

4.- GRANDPARENTS BORN IN WHICH COUNTRIES?
USA

5.- (If you can!) GREAT GRANDPARENTS BORN IN WHICH COUNTRIES?
USA

6.- Do you recall a plant, food, or tree industry which is important to the ~~important~~ place where you come from ? No

7.-Do you have any family customs food and other items from your countries of origin?
Collard Greens

8.- What is the most important food, industry or item you believe your culture has provided for our world today and why?

Rice Because it is easy to grown every coltore has rice in their diet basically.

Finally, we are putting together a recipe book and we would like all of Junior Botanists to contribute. Please, send your child with a recipe that could represent your cultural background;

RECIPE

Coconut Custard Pie

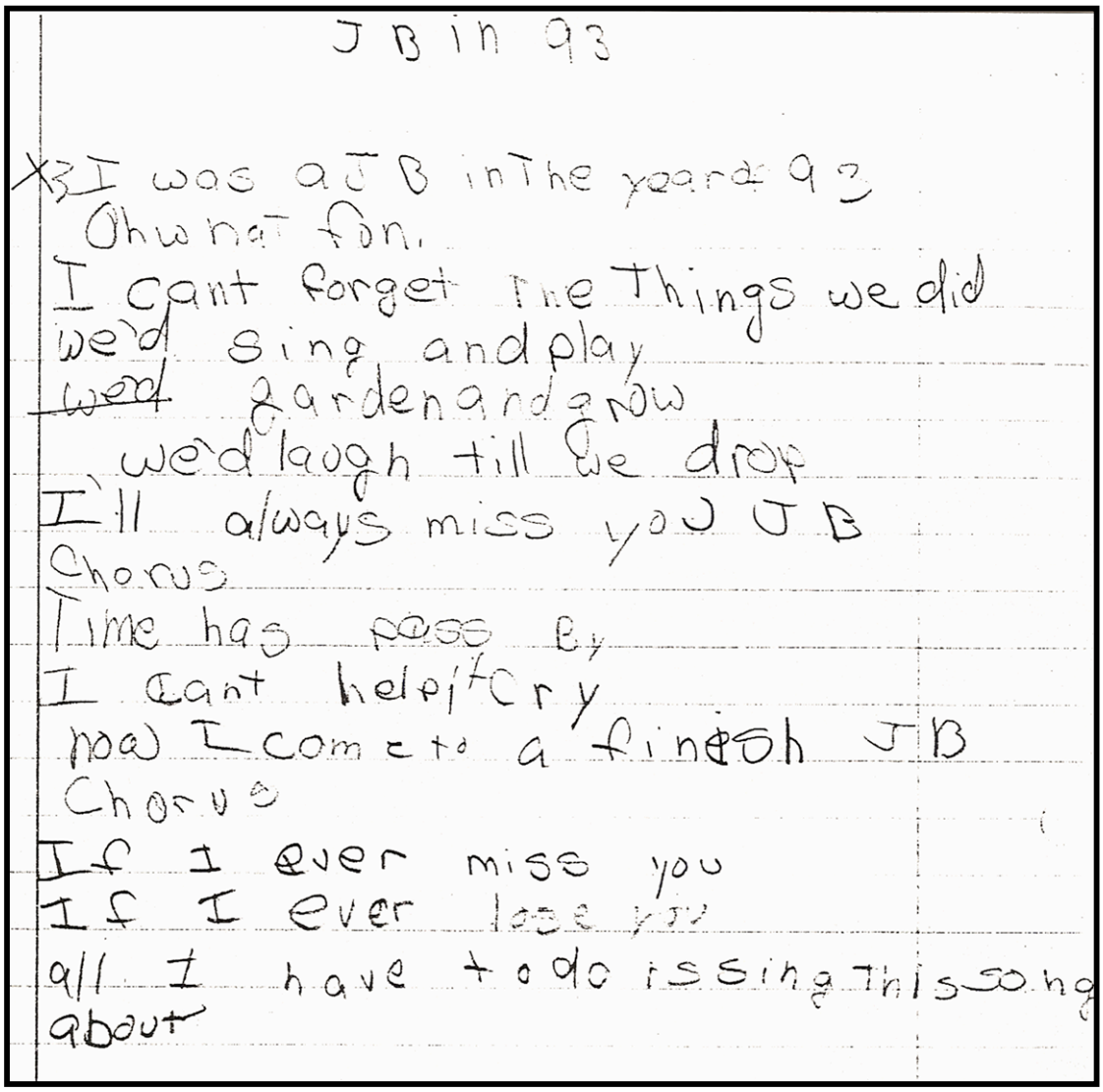
1 ½ cans milk
2 cup coconut
1 ½ cup sugar
4 eggs
1 tbs. flour
1 tbs. vanilla extract
dash of salt
1 stick of margarine

set on 550°F.

Thank you!!!

APPENDIX O

EXAMPLE OF STUDENT WORK – SONGWRITING, 1993



JB in 93

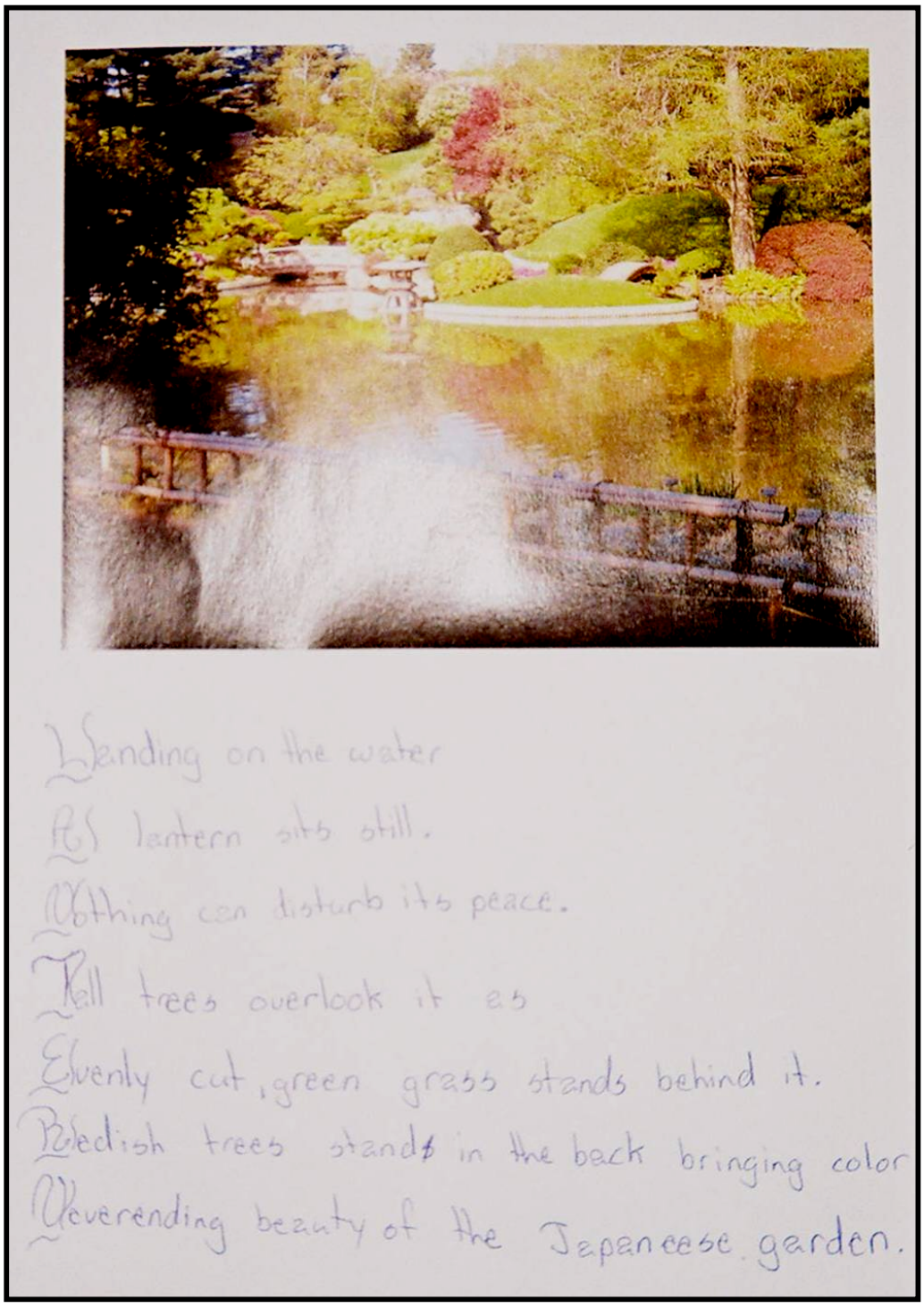
I was a JB in the year of 93
Oh what fun.
I cant forget the things we did
we'd sing and play
~~we'd~~ garden and grow
we'd laugh till we drop
I'll always miss you JB
Chorus
Time has pass by
I cant help it cry
now I come to a finish JB
Chorus
If I ever miss you
If I ever lose you
all I have to do is sing this song
about

APPENDIX P

EXAMPLE OF STUDENT WORK – ART, 2004

APPENDIX Q

EXAMPLE OF STUDENT WORK – WRITING, 2004



Standing on the water
A lantern sits still.
Nothing can disturb its peace.
Tall trees overlook it as
Evenly cut, green grass stands behind it.
Reddish trees stands in the back bringing color
Reverending beauty of the Japanease garden.

APPENDIX R

JUNIOR BOTANIST SUMMER ADVENTURES CERTIFICATE, 1998

Brooklyn Botanic Garden

Junior Botanist Summer Adventures Certificate

Presented to

_____

In recognition of completion of the Junior Botanist Summer Adventures Program of 1998.

_____

Date

_____ PGR Coordinator

_____ PGR Instructor

_____ PGR Intern

_____ PGR Intern

VITA

Born in Council Bluffs, Iowa, and transplanted to Johnson City, TN, at an early age, Susan Conlon grew up visiting public and private gardens and developed a passion for horticulture and how people enjoy gardening in their lives. During her undergraduate years at UT, Susan completed internships at Cheekwood Botanical Garden, Opryland Hotel and Conservatories, and Biltmore Estate. She received a B.S. in Ornamental Horticulture and Landscape Design in 2002. Upon graduation, Susan worked as Horticulturist at Cheekwood; the areas she supervised and maintained included the Color Garden, Water Gardens, and historic Boxwood Garden.

In 2003, Susan returned to UT to pursue a Master's degree in Public Horticulture, studying under Dr. Susan Hamilton. While at UT, Susan served as Volunteer Coordinator for the UT Gardens. Her interests include historic landscape preservation, people-plant relationships, garden design with an emphasis on color displays, and volunteering. In 2005, she graduated with an M.S. in Plant Sciences, with a concentration in Public Horticulture. Susan is currently working as Assistant Editor, Gardening, for HGTV.com (Home and Garden Television).